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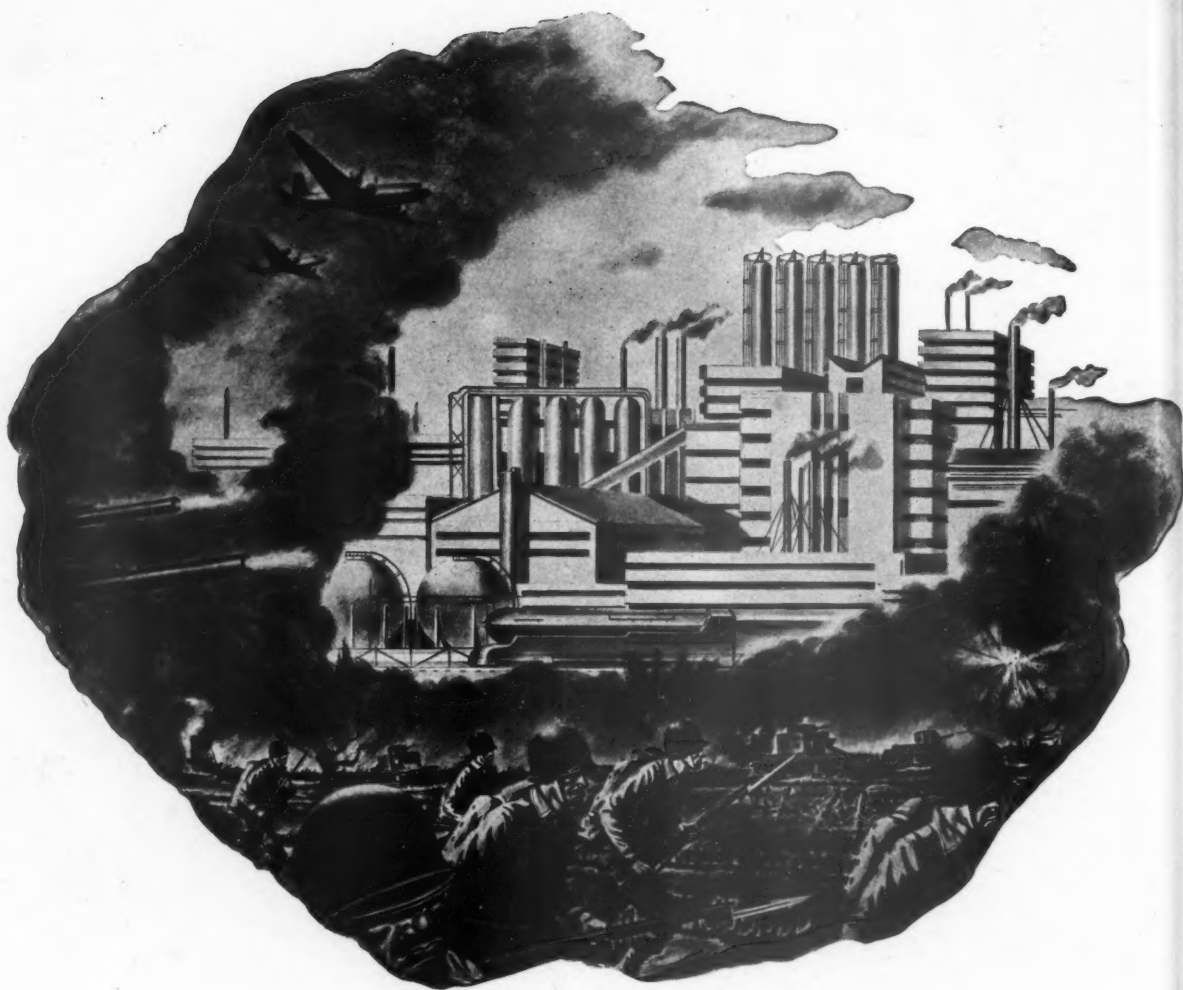


RAISE THE LORD AND PASS THE PULPWOOD!

any strategy requires even more in '44 than in '43—for smokeless powder, tire cord, all kinds of packaging. Above—Potential pulpwood left lying on off lands below Mt. Rainier.

Pulp & Paper

INDUSTRY



Looking to the future with the NEW WEST

Even clouds of war can have a silver lining. Under the stimulus of wartime needs, and with the inspiration of our cause, the West

has found new industrial growth, expansion and independence.

As we at Penn Salt review the accomplishments of our organization to date and look forward to future possibilities, we visualize a wide range of new opportunities—opportunities to serve better, supply more, advance further.

In the field of chemical manufacture, Pennsylvania Salt Manufacturing Company of Washington pledges its closest cooperation in this new progress of the West—that through teamwork and enterprise an even greater industrial empire may here evolve.

Penn Salt
manufactures

**Liquid Chlorine
and Caustic Soda**
for the Pulp and Paper Industry

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Bleaching Powder • Corrosion-Proof Cements
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Perchloron* • Sodium Chlorate
Potassium Chlorate • Sodium Arsenite
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PENNSYLVANIA SALT
MANUFACTURING CO. OF WASHINGTON
Chemicals
TACOMA, WASHINGTON



*The Journal of the
Pacific Coast Industry*

FEBRUARY • 1944

Vol. 18

No. 2

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SUBSCRIPTION RATES

United States.....	\$4.00
Canada.....	\$4.50
Other Countries.....	\$5.00
Single Copies.....	.35
Review Number.....	\$1.00

WPB OKAYS MACHINES TO SAVE WOOD

(An Editorial)

FROM Washington, D. C., direct to this magazine, comes official word that companies which want whole log hydraulic barkers or chippers or other improvements for their wood mills, will receive assistance and encouragement from the War Production Board.

Announcing an important relaxation of wartime restrictions on such wood mill improvements, is the following telegram:

"EDITOR,
PACIFIC PULP & PAPER INDUSTRY,
SEATTLE.

"NO CHANGE IN NEW EQUIPMENT SITUATION. HOWEVER, SOME MATERIAL IS AVAILABLE FOR IMPROVEMENTS FOR HANDLING LOGS, SUCH AS BARKERS AND CHIPPERS, AND SEVERAL APPLICATIONS HAVE BEEN APPROVED.

"ALLAN HYER.
WAR PRODUCTION BOARD,
PULP & PAPER,
WASHINGTON, D. C."

Mr. Hyer, who is in charge of the distribution section for the pulp and paper industry in Washington (on leave as Black-Clawson company sales manager), was asked:

"IS IT TRUE THAT SEVERE RESTRICTIONS ON NEW EQUIPMENT HAVE BEEN EASED PERMITTING PULP AND PAPER MILLS TO IMPROVE THE EFFICIENCY OF THEIR WOOD PREPARATION PLANTS, THEREBY INCREASING YIELD OF PULP FROM LIMITED RESOURCES OF WOOD? MORE SPECIFICALLY, IS IT TRUE THAT PRIORITIES WILL NOW BE GRANTED TO MILLS FOR WHOLE LOG HYDRAULIC BARKERS AND WHOLE LOG CHIPPERS WHICH WILL MAKE POSSIBLE TEN to 23 PER CENT SAVINGS IN WOOD?"

The significance of Mr. Hyer's statement is that there has been a considerable change in the attitude of the WPB regarding priorities for wood mill machinery.

In this issue we publish a complete description of the new whole log hydraulic barker at the Crown Zellerbach kraft mill in Port Townsend, Wash., built a year ago in the face of severe WPB restrictions.

It is apparent that what has changed the attitude of the WPB toward whole log barkers and chippers in particular is their demonstrated efficiency in making possible more efficient use of wood. Wood is one of the most

NEWS OF

The Pacific Pulp & Paper Industry--

15 Years Ago

A new 50-ton sulphite mill of the Sitka Spruce Pulp & Paper Company at Empire, Ore., was near completion, with main structures and machinery installations finished. J. B. Wilt was supervising construction.

A new bag factory has been built by Union Bag & Paper Corp., at Vancouver, Wash.

Arthur W. Towne, advertising manager, has been appointed sales promotion manager for Blake, Moffit & Towne in northern California.

Organization of a Pacific Section of TAPPI was approved at the annual meeting in New York February 19-21 and Robert Bell-Irving, mill manager, Powell River Company, was elected to the executive committee of TAPPI.

10 Years Ago

Superior Court Judge Guy C. Alston on February 20 filed a decision enjoining the Soundview Pulp Company, Everett, Wash., from merging with the Rainier Pulp & Paper Company, Shelton, Wash., and the Olympic Forest Products Company, Port Angeles, Wash. Minority stockholders had brought suit against Soundview officers. The court decided it was unnecessary to appoint a receiver for the Soundview Company and on February 28 this company took over the Everett mill of the Puget Sound Pulp & Timber Company.

Robert S. Wertheimer, resident manager, Longview Fibre Company, embarked for Honolulu in mid-February on a trip for his health.

precious resources of the Pacific Coast, if not the whole nation.

Such savings in wood are not only of tremendous importance in the war effort but in the future husbandry and preservation of our forest resources, whose good available stands are becoming comparatively scarce.

There were men in influential positions in Washington a year ago who did not appreciate the importance of pulp and paper to the war effort. Now, happily, the men at the helm in the WPB have awakened to the critical importance of these products. Now they are frantically striving for more pulp and paper—for smokeless powder, for rayon tire cords for planes and gun caissons and trucks, for parachutes, for all kinds of packaging.

There is a great campaign on, especially in the east, to save waste paper. Farmers and country lads are being urged to cut wood for the mills.

IF ALL THE WASTE PAPER CAMPAIGNS IN THE COUNTRY WERE WHOPPING SUCCESSES, THERE STILL WOULD BE A PAPER SHORTAGE!

AND ALL THE SMALL TREES THAT FARMERS CUT IN THE EAST CAN BE ONLY A DROP IN THE WELL-KNOWN BUCKET, COMPARED TO THE SAVINGS AND CLOSER USE OF WOOD THAT CAN BE MADE ON THE PACIFIC COAST

"Catastrophic Shortages in Paper Threaten."--APPA

PAPER requirements in the United States are in grave jeopardy and "catastrophic shortage of paper" threaten in certain regions, according to a report issued by the American Paper and Pulp Association.

Information accumulated by the association indicates timber cutting in 1943, mainly to be utilized in the mills in 1944, was drastically reduced below 1942 operations. A 32 per cent reduction in pulpwood cutting by 22 Northeast companies and a 25 per cent reduction by 21 Lake states companies were reported. (Pacific Coast pulp and paper mills use logs rather than cordwood, but their receipts of logs also have been drastically reduced).

During 1943 the paper industry used almost 700,000 cords of wood more than it received, with the result that inventories were drastically reduced. During 1944, the pulpwood supply will be about 15 per cent less than in 1943 according to the association. This will be sufficient only to produce 13,000,000 to 14,000,000 tons of paper and paperboard as compared with a desired essential production of 16,000,000 to 17,000,000 tons. A shortage of 3,000,000 tons seems inevitable.

An action program submitted by the United States industry to the government last August has been partially carried out but the association says this program

PACIFIC PULP & PAPER INDUSTRY

WITH ASSISTANCE FROM THE WAR PRODUCTION BOARD—AND FROM MACHINERY MANUFACTURERS.

This magazine has contended that giving assistance to mills in their efforts to make greater use of the wood we already have—wood we are losing in production of lumber and pulp and paper—would be of far greater assistance to the United Nations cause in the winning of the war than all the waste paper drives and radical restrictions being made on pulp and paper production.

Closer utilization of wood has been discussed time and again in these pages and it is certainly an objective which the entire coast industry diligently and earnestly strives to achieve.

Loggers ought to be given every assistance by the WPB to develop, with the aid of manufacturers, economically light equipment that will make it worthwhile to salvage small and broken wood from our western forests—the kind of wood that still looks pretty huge to eastern eyes. In this issue is a report on a discussion of the possibilities of pre-logging and re-logging for this purpose at the recent Pacific Logging Congress. Our cover picture depicts the kind of wood that might be utilized.

But, in order to do this, the western forest industries need the assistance of the WPB and the machinery manufacturers.

must be expanded and expedited if the situation is to be saved.

The United States public has become callous to big figures, reading every day about billions of dollars being spent and millions of this or that being needed.

Instead of talking about how many millions of cords of pulpwood are needed to make the paper and paperboard to package nearly every bit of equipment, all food and medical supplies and most ammunition going overseas, maybe the industry ought to publicize the problem in a different way.

It might bring the need home to the public if the true fact were advertised that every soldier overseas needs initial supplies of six tons packed in pulpwood. And that's just a beginning to keep him equipped, fed and to give him a chance to recover from wounds.

UNITED STATES TOTAL PULPWOOD RECEIPTS, CONSUMPTION, INVENTORIES, ALL SPECIES

1941-1942-1943

(Rough Cords of 128 Cubic Feet)

Year	Receipts	Consumption	Inventory at End of Year
1941	17,170,000	17,360,000	3,717,000
1942	16,710,000	16,845,000	3,378,000
1943 (est.)	14,300,000	15,000,000	2,678,000

Increase In Pulpwood Necessary In 1944

● Production of 14,000,000 cords of domestic pulp wood will be necessary in 1944 to supply the expanded need for paper and pulp products of our armed forces overseas and for essential home front war requirements, according to James L. Madden, deputy director of the WPB's Paper Division, who is in charge of pulp wood.

The 1944 goal is 1,000,000 cords greater than that estimated by the WPB as the minimum need for 1943. The

additional 1,000,000 cords is necessary for packaging material, especially weatherproof paper and kraft board for packaging and shipping munitions, foods and medical and other supplies

Donates for First Aid Car

● Crown Zellerbach Corporation, through J. E. Hanny, resident manager of the Camas mill, donated \$1,000 toward purchase of a new first aid car for eastern Clark county, Washington. This was one-third of the goal set by the Camas fire department and Lions Club, joint sponsors of the drive.

Four Zellerbach Paper Co. Men At N. Y. Convention

● Representing the Zellerbach Paper Company at the National Paper Trade Association convention, New York, February 14, during "Paper Week," were H. L. Zellerbach, president; Victor E. Hecht, vice president; Philo Holland, manager of the Los Angeles division; and King Wilkin, assistant to Mr. Zellerbach.

During Mr. Hecht's absence in the east his office work will be handled by A. F. Neumann, sales manager of the San Francisco division.

Crown Zellerbach Presents-- A NEW WHOLE LOG HYDRAULIC BARKER

THE most widely discussed subject of engineering enterprise in the entire field of woods industries today is whole log hydraulic barking. So far all the research and development work has been done in the pulp and paper field but there is good reason why sawmills and all the users of forest resources should be interested.

The reason is simple enough and it is crystal clear to every postwar-minded leader in the woods industries. It is this: The available stands of good timber for manufacturing purposes are diminishing. A machine that will increase efficiency in pulp manufacture and make for closer utilization of our forest resources is therefore of paramount importance. The most spectacular achievements in this line have been made in hydraulic barking, which bids fair to greatly augment the wood supply of pulp and paper mills by giving the managed forests of the more progressive companies

just that much longer to catch up their growth. In other words, the hydraulic barker can aptly be styled an able ally of reforestation.

Now a new type of hydraulic barker has stood the uncompromising tests of five years of experimentation. It went into permanent operation on January 13 at the Port Townsend, Washington, kraft paper mill of Crown Zellerbach Corporation.

Less than 48 hours later it was performing before an admiring audience composed of President J. D. Zellerbach; two Vice Presidents of the organization—Albert Bankus and Don S. Denman, and N. M. Brisbois, Vice President of Fibreboard Products Inc., and two resident managers—E. W. Erickson of the Port Townsend mill, who battled for two years against almost unsurmountable wartime handicaps and restrictions in order to get the machine completed, and Raymond A. Dupuis, Manager of the Port An-

geles, Wash., Division of Crown Zellerbach, who plans to have a similar barker in his plant.

Demonstrating the new machine to the visitors were Harry E. Bukowsky, Plant Engineer, and E. W. Erickson, Resident Manager. The same evening, Vice-President A. Bankus told the Service Pin Banquet audience that Mr. Bukowsky "had the barker idea and the persistence to carry it through" and that "Mr. Erickson saw the possibilities and persuaded the San Francisco executives to back the experiment."

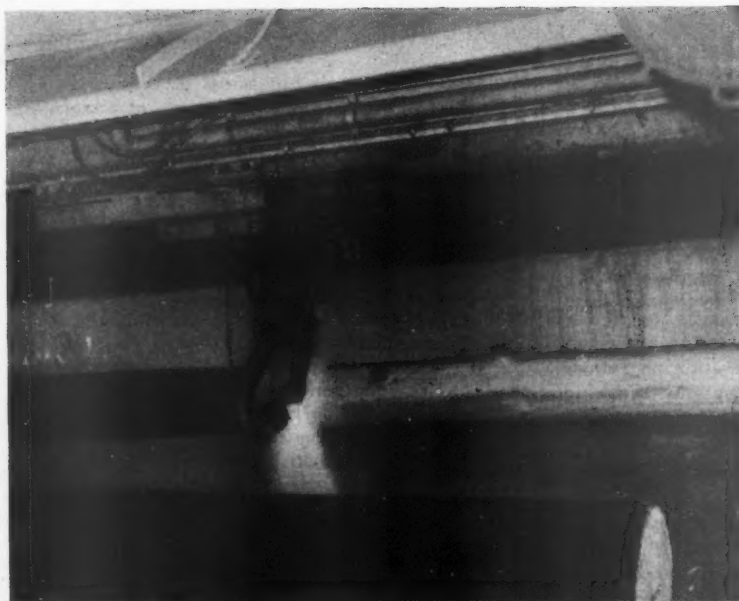
Lathe Principle

● The barker, operating on a lathe principle, is utterly simple in design and operation. It is expected to clean up to 100 logs an hour. It will handle giant western hemlocks as big as 54 inches in diameter and 22 feet long or as small as nine inches in diameter and 12 feet long. However, the principle could be applied to longer and larger logs. The savings achieved in wood are remarkable and will be discussed later in



INTERIOR VIEW OF THE PORT TOWNSEND, Wash., barker. An uncleaned log in lower right hand corner approaches the deck stop. Logs are laid one at a time onto transfer chains running across the barker. Each log is raised off the chains by loaders. Log is brought to centering height where a tail stock (at one end) pushes the log about a foot against a driving head. The log is gripped by rotating centers.

In upper right is shown the nozzle and overhead nozzle carriage. The nozzle maintains a constant distance and angle of impingement from the log because of the point of suspension of the pipe and the steel shoe which rests against the log.

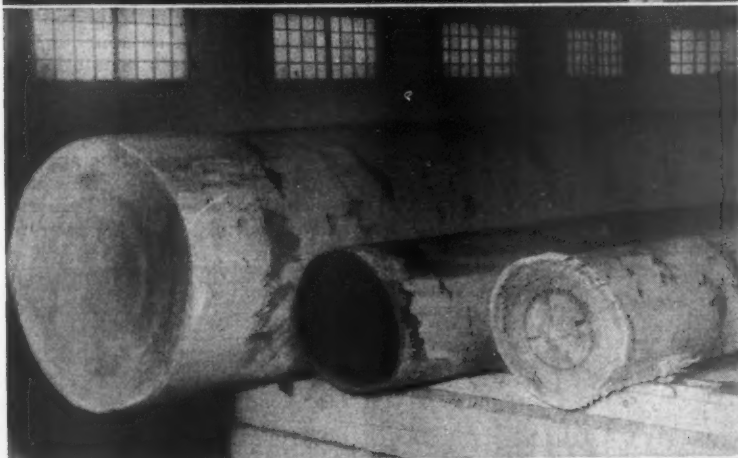


VIEWS OF THE NEW WHOLE LOG HYDRAULIC BARKER at the Port Townsend, Wash., Division of Crown Zellerbach Corp.

Top—The barker in action. It handles logs up to 22 feet long and 54 inches in diameter. This log is barked about half way. The jet of water, hitting the revolving log at a pressure of 650 lbs. per sq. in., is traveling to the left where the unbarked portion of the log can be distinguished. The log is centered between a tail stock and a driving head and is automatically centered because of the shape of the loading arms. In the foreground is another log on a transfer, ready to be lifted into place by the big loaders. Above the nozzle carriage is a protective canopy.

Center—Some of the barked logs.

Below—J. D. ZELLERBACH, President of Crown Zellerbach Corp., is standing behind a safety glass shield watching the operation. To the left are logs moving on transfers to the barker. In the middle left is seen a log being lowered after being barked.



this article. To even the man in the street, the importance of such savings in a nation at war are readily understood today.

Yet, this barker had to be virtually put together out of the junk piles of the nation. Wartime restrictions and priorities were among the almost insurmountable obstacles. Mr. Bankus called it "the ultimate in improvising" and this is why:

"Critical" war materials represent only one-tenth the cost of installation.

Thirty-five tons of steel plate and structural shapes, salvaged from the wrecked Tacoma Narrows Bridge, which collapsed in a storm in 1940, were used.

Gears were selected from a scrap-pile of several hundred from the abandoned Seattle and Tacoma street car system.

Motors, starting equipment, shafting and bearings were obtained from dismantled sawmills.

A 500 GPM five-stage centrifugal pump was salvaged from a descaling installation in an Eastern steel mill.

Automobile junk yards of the country were scoured for 1,100 old Ford and Chevrolet axles which were made into conveyor chains.

An old water tank was made into a canopy and hopper for the barker.

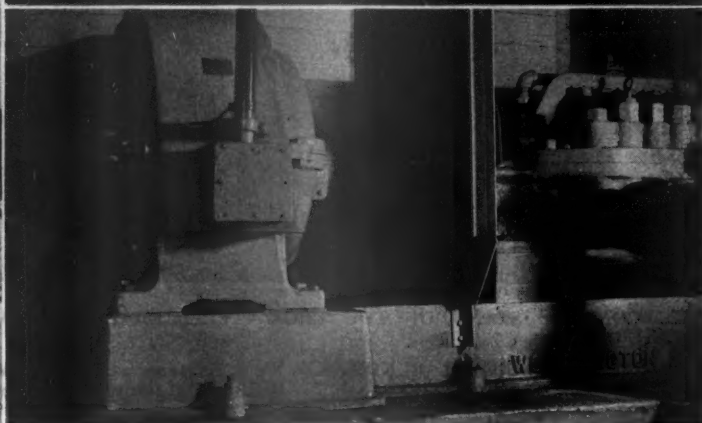
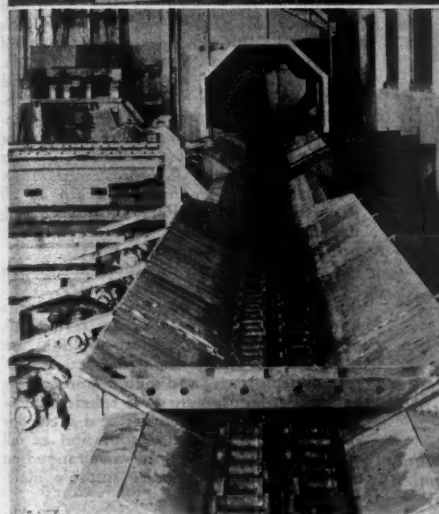
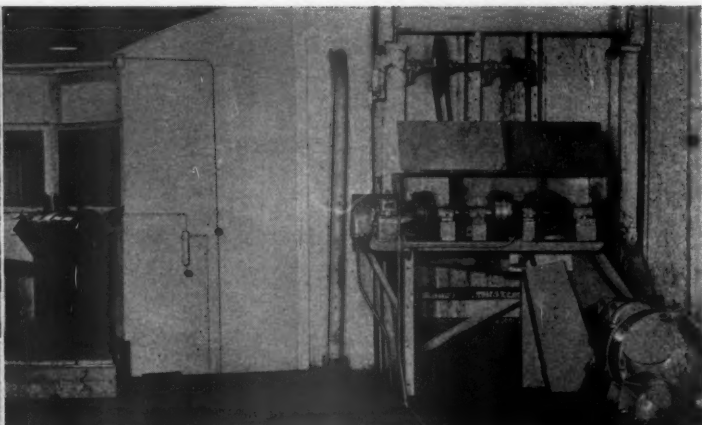
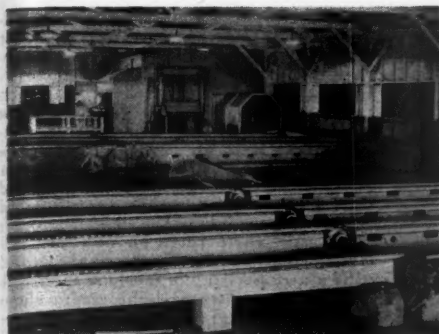
That's why Mr. Bankus said "the ingenuity of our Port Townsend mechanics made possible this barker."

And here's the payoff:

"Today we are still at war but my understanding is that the War Production Board will give every encouragement in the securing of critical materials for hydraulic barker construction," said Mr. Zellerbach.

The reason for this is that now





OTHER VIEWS OF THE NEW HYDRAULIC BARKER and equipment at the Port Townsend, Wash., Division of Crown Zellerbach Corp.

Upper left—A general view of the barker installation from the operator's side. At left center are seen two logs moving toward the barker. The housing around the barker machinery is shown in about the center of the picture. Just on the left of this housing is the operator's control board; his safety glass shield is reflecting light in the picture. In the foreground are transfers which convey barked logs into the woodmill, the logs coming from the tunnel on the right of the barker housing.

Lower left—a closer view of the exit tunnel from the barker and view of two log conveyors in tandem. A three chain conveyor at the far end can be seen, which runs past the barker and picks up barked logs. Logs too large to go direct to the Sumner 110 in. chippers are shoved off the three chain conveyor by log pusher bars onto a heavy chain transfer at left background. Smaller logs pass on to the two chain conveyor and onto transfer in left foreground.

Upper right—A closeup of the equipment on the operating side of the barker. At left of this picture is the operator's stand, whose levers and operating buttons are explained in the article. At right is a motor drive for log rotation. To rotate the log there is a 35 hp. Westinghouse d.c. variable speed motor fed by a motor generator set. In the steel box with lids up are two Stearns magnetic clutches to control motion of nozzle carriage and to drive the nozzle carriage motion.

Lower right—A Worthington high pressure 5-stage, 1750 rpm pump with 300 hp. General Electric motor. These are installed below the barker. Water is available at two sources: Fresh raw water and second wash water from the pulp washers. A 50 hp. pump brings water from the pulp mill to the suction of the high pressure pump.

that there is a critical shortage in logs and in the products of pulp and paper mills, the government is keenly aware of the value and importance of whole log hydraulic barkers. The WPB already has approved construction of barkers similar to the Port Townsend installation with new steel and electrical equipment and machines.

HISTORY

● Mr. Bankus called the Port Townsend barker "novel and important."

These were unusual descriptive adjectives coming from one who had himself experimented with hydraulic barking a quarter of a century ago at the West

Linn, Ore., mill. He knew well enough that the general idea of hydraulic barking is old in the industry. One reason for early failures was that the types of pumps available did not measure up to those used today. At West Linn, he said, water pressure was only about 300 pounds to the square inch, about half that used at Port Townsend, "and if we held the nozzle to the log long enough, the bark would come off."

Calling the Port Townsend barker "novel and important" was a tribute to its originality combined with simplicity, but most of all to its proven success.

What Mr. Bukowsky actually started to work upon back in 1939 was a cutting barker. But what he eventually sketched was a whole log hydraulic barker. Fundamentally, the barker he sketch-

ed five years ago is the one now operating at Port Townsend. The lathe idea, the idea of a rotating log debarked by a cutting "knife" of water traveling the length of the log, has been retained.

The first attempt made at Port Townsend to debark hydraulically also took place in 1939. Iron bars were driven in each end of a six-foot log and a motor was set up to rotate it. It was moved close to an already-installed pump. An improvised nozzle applied a jet of about 300 pounds per square inch pressure. Bark came off—eventually. These experiments and study and designing continued.

In 1940 the main frames, log supports and a nozzle carriage were purchased for an improved model. A temporary



THE CONTROL STAND OF THE CROWN ZELLERBACH HYDRAULIC BARKER.

(Left to right) HARRY E. BUKOWSKY, Plant Engineer at Port Townsend, Wash., handling the levers; ZIGMOND SPINDOR, one of the regular Barkermen and one of a half dozen men at the mill who have learned the simple operation, and J. D. ZELLERBACH, President of the company.

There are four levers and four buttons on the control stand and a foot button to control a deck stop. Operation is explained in the accompanying article.

transfer and an obsolete boiler feed pump were obtained.

When the Japs raided Pearl Harbor, log loaders and a centering device were on order and these, fortunately, were completed a month later. The machine itself was about three-quarters finished and was able to produce on a limited scale. But there was much more to be done—the mill was still a long way from having a complete plant.

Further work would be limited by the War Production Board. The company for some time was undecided whether to use the barker on a limited basis for the duration or to go to the WPB and seek permission to complete the barker and construct the plant building.

Kraft Demand Increased

● The demand on the mill for its kraft paper products grew more urgent and the capacity for bark removal in the old chipping plant became acute. It was then decided to go to the WPB. Meanwhile operation of the machine continued for a year and a half. But in Washington in those days paper wasn't considered so important. As a result of policies followed at that time, production of some pulp and paper was dispensed with and irretrievably lost for the duration of the war. Radical ideas were advanced for further restriction. Today, with the Army, Navy, Lend-Lease and government agencies crying for more pulp and paper, those ideas seem fantastic. One big kraft pulp mill in Washington State was shut

down, throwing a bigger load on Port Townsend and other kraft mills.

In view of Washington's prevailing attitude at that time, it was not surprising that the Port Townsend mill got authority only to purchase the necessary lumber for a barker building, enough nails to



D. EARL BAKER, Foreman of the Wood Room at the Crown Zellerbach mill in Port Townsend, which includes the new barker plant. Mr. BAKER is standing at the top of the log haul from the pond.

hold it up and a limited quantity of welding rod for the fabrication of conveyer chains and the remodeling of used equipment.

Another problem faced by Mr. Erickson was the plan of the Pacific Coast Association of Pulp and Paper Manufacturers to have all member mills devote two shifts in their machine shops to a special war work program, finishing and machining vital parts for war ships and cargo ships. Only one machine shop shift was expected to carry on necessary mill maintenance. Mr. Erickson recognized the urgent necessity of machine shop work for war purposes, and the record shows that up to the end of 1943, the Port Townsend mill mechanics had performed in excess of 47,000 man-hours to this war work. However, it was recognized that there was still another war job to do. Manpower was short in the woods and mill operators were hard pressed to secure requirements of logs for the manufacture of important kraft papers for war purposes. Fuller utilization of logs which came to the mill seemed imperative. Yet in spite of manpower drain in all departments of the Port Townsend mill, the management and mill crews somehow met both challenges of war.

Construction for the final installation of the barker began in January, 1943. This consisted of the construction of a barker plant—a two-story, 53-by-140, frame building; fabrication of 2,000 feet of conveyer chain and sprockets out of scrap steel plate and axles; remodeling of all used equipment; the fabrication of a hopper under the barker and a canopy over it and the final installation of all equipment. Construction was changed on several occasions as more suitable materials became available.

Engineering work followed upon the acquisition of materials—ordinarily, the process is reversed. This was not a happy state of affairs as the engineer did not know what he was going to get far enough in advance to make his task as smooth as it would be today.

Many nights during this past year of the final phase of the development, Mr. Bukowsky worked until midnight at the mill. Many long hours were also contributed to the project by the assistant plant engineer, Eugene E. Dale.

FLOW DESCRIPTION

● This installation is made to function in conjunction with the existing wood mill of the Port Townsend plant. The logs are taken from the existing mill as they are brought in from the pond.

A Sumner Iron Works 96-inch circular cutoff saw reduces lengths of the logs to a maximum of 22 feet. The logs are then brought to barker on a chain transfer. This transfer extends across the bed of the machine to a discharge point above log loaders. The exact discharge point does not have to be reached as the loaders have a six-foot reach.

Powerful steel loading arms lift the giant logs off the chain as though they were sticks of bamboo. When the log is brought to centering height (the log, of course, must be centered as it would be in a lathe), a tail stock at one end, operated hydraulically, is brought up against one end of the log. The motion of the tail stock simultaneously pushes the log endwise for a distance of about a foot, against a driving head. The log is now suspended between two rotatable spindles.

Many non-engineering minded observers are baffled by the way the logs are

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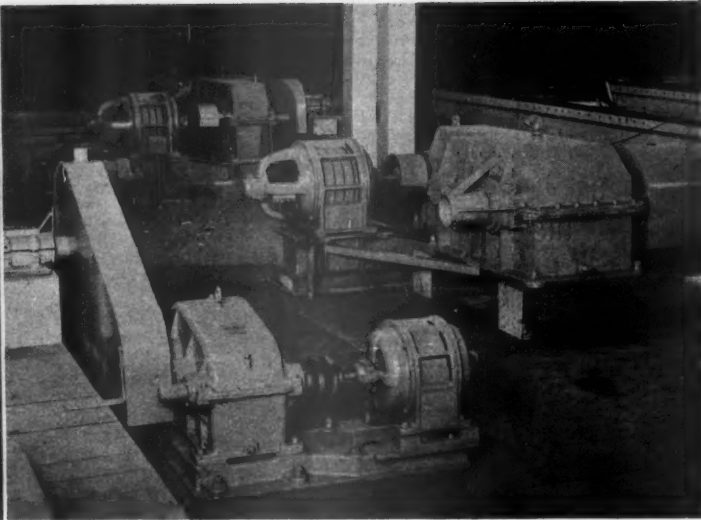
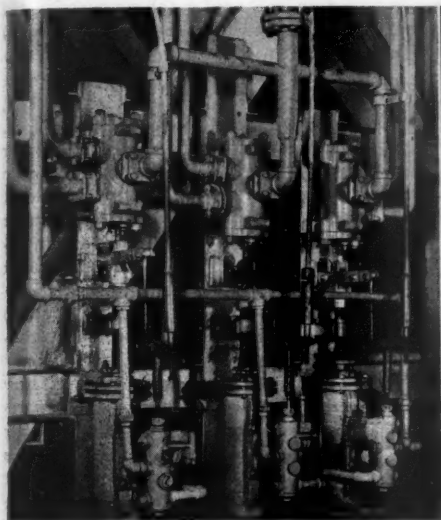
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EQUIPMENT AT THE NEW LOG BARKER PLANT AT THE PORT TOWNSEND DIVISION of Crown Zellerbach Corporation.

Left—Control valves power operated, manually controlled. Looks elaborate but is quite simple. Carbs on strategic materials necessitated this. When desired materials become available this will be replaced.

Right—All log transfer and conveyor drives are on the upper floor of the barker plant with the barker mechanism. At left are shown Western Gear speed reducers and Westinghouse motors. Five Western Gear speed reducers are used in transfer equipment which moves barked logs on their way to the chippers. At right are shown two large speed reducers designed at the Port Townsend mill and built in the mill's own shops because of the wartime restrictions on acquisition of regularly manufactured reducers. Motors on the two home-made reducers are General Electric.

actually halted at centering height. This is simple because the shape of the loading arms is such that they stop automatically when a log of any width from 9 to 54 inches reaches centering height. With the log suspended, the loaders are brought down. A nozzle with a four-inch pipe suspended from a carriage which travels on a trolley above the log, is then lowered into position for the barking operation. The log is rotated and the nozzle, controlled by an air cylinder, travels lengthwise alongside the log.

A jet of water strips the log of bark by hitting it at an angle with a pressure of 650 pounds per square inch. There have been recent improvements of the nozzle. The permanent nozzle is to be seven inches wide ($\frac{3}{4}$ of an inch opening). The nozzle advances its own width for each revolution of the log. Thus, it will cut a seven-inch swath of bark off with each revolution. The nozzle carriage is fitted with swing joints to permit a 24-foot travel.

One of the almost surprisingly simple features of this barker is that the lowered nozzle automatically takes a proper position with respect to any log, regardless of its diameter. The nozzle maintains a constant distance and angle of impingement from the log because of the point of suspension of the pipe and the steel shoe which rests against the log.

Barks Uneven Logs

● How about rough, uneven logs? The nozzle is safely cushioned against shock and readily rides over knots and protrusions. WHEN MR. ZELLERBACH AND OTHER EXECUTIVES VISITED THE PLANT THEY SAW THE BARKER CLEAN ALL SIZES OF LOGS AND A FEW ODD-SHAPEN ONES. ONE LOG THAT WENT THROUGH HAD A COUPLE OF BENDS IN IT THAT

MADE ONE THINK OF A CRANK-SHAFT OR AN IRISHMAN'S WALKING STICK.

Occasionally, on a very rough log, the operator of the barker can halt the nozzle and re-run it over any distance, going back a few inches or several feet, as he desires.

After the log is barked, the loader arms are again brought up to support it and the tail stock releases the log. The load-

ers then lower the log to transfer chains which carry the log to a discharge point on the machine. Meanwhile, during the time the log was being barked, the next log was being brought into position for the loaders.

The operator or barkerman has a control stand with four levers, four push buttons above them and a foot button. His station is protected from spraying water by two safety glass shields. Two levers are used for loading, the push buttons controlling transfer across the machine. One lever and button control rotation of the log and the carriage feed motion. The fourth lever with its button control the tail stock and nozzle. The foot button is to control a deck stop.

Because of its simplicity, operators become familiar with the controls with a few hours' practice. There are now half a dozen employees in the woodmill who are able to operate the machine.

Equipment Described

● The main frames and nozzle carriage for this barker machine were made by Sumner Iron Works. Ball and roller bearing fitted spindles and tail stock were made by Lamb-Grays Harbor Company.

Below the barker is the pump—a Worthington five-stage centrifugal 500 GPM pump of 1750 RPM. A 300 HP General Electric motor operates it and hand kicker cylinders are made by Sumner.

To rotate the log there is a 35-HP Westinghouse d.c. variable speed motor fed by a motor generator set.

The barker has two Stearns magnetic clutches to control motion of the nozzle carriage.

Refuse from the barker is carried by a conveyor through a number 45 Sumner hog and on to hog fuel storage bins. One of the real thrills to pulp and paper



GENE DALE, Assistant Plant Engineer, Crown Zellerbach Corp., Port Townsend, Wash., who spent many long and late hours with **HARRY BUKOWSKY**, Plant Engineer, in work on the new hydraulic barker.

makers is to see the material in this bark conveyor—rarely does one see slivers.

After being cleaned of bark, conveyors take the logs to transfers in the new building. There are G. E. motors on the log transfers and conveyors.

Five Western Gear speed reducers are used in the transfers equipment as well as an old Westinghouse and a Falk model.

The barked large diameter logs are separated from the smaller ones.

The smaller ones go directly down one transfer to a 110-inch Sumner chipper. The larger logs go to a log deck feeding a head rig. Here are installed a 10-inch Sumner Simonson turner, a Sumner saw carriage fitted with Filer and Stowell air dogs and a nine-foot Allis-Chalmers band mill. The logs are sawed into cants of a size to feed into another 110-inch Sumner chipper. There is one by-pass transfer permitting movement of large cants to either of the two chippers.

SAVINGS

● Various tests made at the Port Townsend mill have convinced the officials of Crown Zellerbach that the type of whole log hydraulic barker now installed there is capable of saving up to 20 per cent in wood. This is an estimated savings throughout the industry and, of course, would vary according to methods currently used by a particular mill for bark removal. Many old mills, prevented by wartime regulations from making improvements, have wood rooms that are described by their own operators as "antiquated" and larger savings would be made here. Since Port Townsend already had fairly efficient cleaning methods for its purposes, and a limited loss in saw kerf, the savings, perhaps would not be as great there.

It is too early to offer any specific figure on Port Townsend savings.

There is also an additional important wood saving in the reduction of saw kerf, as the breakdown of logs is greatly reduced. The mill



HARRY E. BUKOWSKY, Plant Engineer, outside his office at the Port Townsend mill. The type of hydraulic barker built at that mill was "his idea," according to **ALBERT BANKUS**, Vice President of the Crown Zellerbach Corp., who praised Mr. BUKOWSKY for his persistence in five years' experimental development work and in the final construction of the machine.

previously had a loss in saw kerf of four to five per cent. It is now estimated that this loss has been at least cut in half, and probably even to considerably less than half. (The Port Townsend mill formerly cut even small logs into quarters in order to peel the bark. In contrast, the whole log is now barked.)

The barker has taken up to 66 logs an hour in the set-up which preceded the final installation and modifications of the machine. Tim-

ing on the new machine installation indicates it should average about 100 logs an hour.

It is too early to make a more definite report because the machine, which will normally handle hemlock, has been obliged under the war emergency to bark considerable amounts of Douglas fir cull logs. Hemlock bark is ordinarily not over an inch thick. The Douglas fir received at Port Townsend has bark running to four inches in thickness. Naturally, there is about a 30 to 40 per cent reduction in speed in cleaning the fir.

We have already suggested how savings in wood in the mill is reflected in savings in the timber stands. For example, a mill with this barker that can make a twenty per cent saving in wood, will therefore use its stands of timber more slowly, permitting better crop control and husbandry of forest resources.

With a 20 per cent saving, such a mill would consume the same amount of timber over 12½ years that it formerly required for ten years in making a specified amount of pulp. These are statistics which stir the imagination. If such savings were made throughout the industry by the installation of whole log hydraulic barkers, great forests of hemlock could be preserved for later use.

At the beginning of this article it was suggested that whole log barkers should interest sawmills and other users of timber. High officials of Crown Zellerbach have pointed out that a sawmill that cleans its wood by this process could use the round outside cuts of wood, thus saved, for other products or could supply them to pulp and paper industries.

Port Townsend Kraft Mill Celebrates 15 Years' Expansion

JANUARY 15, 1944, was a red letter day in the history of the Crown Zellerbach Corporation.

A new whole log hydraulic barker, designed to make critical savings in wood (described in the preceding article) was formally inspected in its final installation at the Port Townsend, Wash., Division by a half-dozen prominent executives of the company.

That evening these executives gathered with prominent citizens of the community and about 120 employees of the big kraft mill for a three-fold purpose:

1. To celebrate the barker installation.
2. To celebrate 15 years of successful operation of the mill (the first digester was blown October 6, 1928).
3. To witness the awarding of five to 30-year service pins to more than 100 employees by President J. D. Zellerbach. (About 60 have been with the mill since its opening and a small number of these previously had been in other Crown Zellerbach mills.)

Briefly, here are some of the highlights of the combination "home-cooked" turkey-ham dinner in the

Masonic Temple, served by girls from the bag factory:

Mr. Zellerbach revealed that top executives of the corporation are meeting about every two months as a Post-war Planning Committee and are making progress in development of new products, new market possibilities and perpetual timber resources.

He epitomized the growth of the Port Townsend mill by pointing to its 1943 payroll of \$1,250,000 compared with \$350,000 in its first year.

He gave his picture of a happy postwar world, for which the company is striving—"an opportunity to



THE HEAD TABLE AT THE PORT TOWNSEND DINNER ON JANUARY 15 (left to right) MRS. E. W. ERICKSON, wife of the Resident Manager; ALBERT BANKUS, Vice President of Crown Zellerbach Corporation; MRS. J. D. ZELLERBACH; J. D. ZELLERBACH, President of the Corporation; WILLIAM D. WELSH, Toastmaster; E. W. ERICKSON, Resident Manager of the Port Townsend Division; N. M. BRISBOIS, Vice President, Fibreboard Products Inc.; McDONALD S. DENMAN, Vice President, Crown Zellerbach Corporation, and MRS. VIVA MILLER CLAUSEN, only woman employee receiving a Service Pin and the wife of a Coast Guardsman serving on Attu.

work and provide for ourselves and our children in a pleasant and agreeable environment."

Albert Bankus, vice president in charge of operations, praised all the plants in the industry for demonstrating their ingenuity and resourcefulness "in improvising and getting by with little material under wartime restrictions." He described the new barker—"built out of the junkpiles of the nations"—as "the ultimate in improvising."

I like to think of this plant as not a mass of steel and concrete," he said, "but of the important products it makes and of the men it has developed, for without these key men, a plant is of little value."

N. M. Brisbois, vice president in charge of operations of Fibreboard Products Inc., a Crown Zellerbach subsidiary, made a half dozen money prize awards to employees for suggestions improving plant operations.

Mr. Brisbois urged the employees to "come forward with their suggestions because it is the employees with ideas who are watched for promotion." He said, "two or three hundred Fibreboard employees have been advanced because of the suggestions they have advanced and there are at least two managers of Fibreboard mills and many supervisors and superintendents who were promoted because of this."

Erickson Starts Proceedings

● E. W. Erickson, resident manager of the Port Townsend mill, started off the proceedings by stating the three-fold purpose of the dinner and welcoming the guests from San Francisco headquarters. He wound up his brief remarks with a humorous story in Swedish and introduced William D. Welsh of the industrial and public relations department in San Francisco as the toastmaster. Mr. Welsh promptly responded by asserting that "the rest of the program will be in English."

Mr. Welsh, well known in Port

Townsend because of his many years as editor of the nearby newspaper in Port Angeles, Wash.,—"50 miles up the salt chuck," as he described it. He kept the audience chuckling with his usual fund of stories and pointed up the occasion by describing each speech as figuratively "lighting a candle on the mill's fifteenth birthday cake." At the end, he said:

"We now light the balance of the candles and place them in the windows of our thinking in tribute to those uniformed men and women from the Port Townsend mill. Somewhere tonight they are fighting to make certain that everything they left behind will remain secure. And it seems these candles should glow more faithfully than all the rest as we pledge ourselves not to forget them, nor to let them down."

Before calling on the speakers, Mr. Welsh introduced Mrs. Zellerbach and Mrs. Erickson, D. S. Denman, vice president of Crown Zellerbach Corporation in Seattle; Raymond A. Dupuis, resident manager of the Port Angeles Division; Leonard Ziel, assistant resident manager of the Port Townsend Division, and a number of Port Townsend civic leaders.

In introducing Mrs. Zellerbach, he jokingly described her as "one of the war widows" in reference to the fact that her husband has been giving so much of his time to war work in Washington.

Suggestion Awards

● The suggestion awards, then made by Mr. Brisbois, were \$25 to Wallace Rogers for a new design for kickers on the bag machines, which replace critical materials, and lesser awards to Charles Schwinn, E. W. Bittner, George Skinner, Vinton Bishop and Peter Meister. Mr. Brisbois stressed that recognition of

(The addresses by Mr. Zellerbach and Mr. Bankus are published on the pages following this article).

employees with ideas rather than the amounts of money were the true significance of these awards.

He said that in the Port Townsend mill since 1931, a total of 1,917 suggestions have been made of which 860 were accepted and placed in use.

Then followed the addresses by Mr. Bankus and Mr. Zellerbach.

In introducing Mr. Bankus, Mr. Welsh invited him to "light a candle to the usefulness of men, machines and materials in the present war." And Mr. Zellerbach was called upon to "light a candle so that we may look some distance through the darkness of war to the signposts marking the direction we hope to go in the daylight of peace." This they did, as their speeches published elsewhere show, Mr. Zellerbach revealing the postwar planning of the corporation.

Referring to the service pin winners, Mr. Welsh said:

"Sixty-nine of you who receive fifteen-year pins tonight earned a total of \$133,515 in 1929—the year of your first employment in the Port Townsend mill. Experience, promotions and increases across those fifteen years has materially changed the income picture. In the year 1943 the sixty-nine persons received \$228,135, or an increase of 71.1 per cent.

"Thirty-six of you who receive ten year pins tonight had a total paycheck of \$33,948 in the first year of employment—1934. Your experiences and advancements across the ten years has materially changed this income picture, for records reveal that in 1943 the total income of the thirty-six people was \$107,712, or an increase of 217.1 per cent."

Service Pin Winners

● Mr. Zellerbach, following his talk, awarded a five-year pin to the only woman winner—Mrs. Viva Miller Clausen, employed in core cutting, whose husband is a Coast

Guard warrant officer on the Aleutian island of Attu.

Then he awarded a 30-year pin to D. J. "Del" Wollam, chief power plant engineer.

Twenty-year pins went to A. J. Bogan, master mechanic; Tony Angelo, cement man; Charles J. Guntley, assistant fireman in the power plant, and George W. Skinner, caustic liquor maker.

Fifteen-year pins went to F. L. Ziel, assistant manager; G. V. Emerson, pulp mill superintendent; G. A. Hunt, office manager; I. R. Weberg, foreman of the wood mill in Port Gamble; Lawrence Harney, purchasing agent; D. Earl Baker, foreman of the wood mill; William F. Bishop, yard foreman; P. F. Mullaney, watchman and father of Bernard Mullaney, personnel supervisor; G. D. Abraham; A. A. Ammeter; Denis Axon.

L. G. Blankenship; Clyde Boggs; Howard Boggs*; Herb Bromley; Manuel Cadero; J. W. Colvin; E. V. Coulter; Lee C. Davis; N. J. Davis; J. A. Deakin; H. A. Durst; Thos. Geddes; Chester Gillett; Muriel Goforth*; Jess L. Harrison*; Chas. Hollender*; Ray Hostetler*; A. W. Haines; Arthur Haugen; H.



THREE OF THE 20-YEAR SERVICE PIN WINNERS AT THE PORT TOWNSEND MILL with E. W. ERICKSON, Resident Manager. Left to right: GEORGE W. SKINNER, Caustic Liquor Maker; TONY ANGELO, Cement Man; A. J. BOGAN, Master Mechanic, and Mr. ERICKSON. The lone 30 year pin winner, DEL WOLLAM, Power Engineer, successfully dodged the camera, and CHARLES J. GUNTLEY, Assistant Fireman, another 20-year winner, was ill at the time.

M. Hinds; V. G. Hodgon; S. A. Howell; John Jorgensen; Mike Korpell; Walter Lammers; Ernest Lashua; N. G. Lindh; A. H. Lloyd; Norman Luck; W. L. Lupton; R. N. Marion; C. V. Martin; J. Q. Merrill; Frank Miller.

John Milroy*; Harry Minaker; M. M. Morris; George Pears; Ralph

Pickett; E. A. Poe; J. A. Potter; H. A. Radley; N. E. Rogers; Dan Sakatos; L. F. Savage; L. H. Scott; I. W. Shaffer; Elihu Smith; E. V. Sullivan; Wm. Sweeney; Ole Tjemsland; Bert Tuttle; J. L. Van Valkenburg; F. W. Walsh; Wm. Sullivan; N. A. Whitnack; Dale Williams, and H. H. Zeits.

Ten-year pins went to Max Loomis, safety supervisor; George Alness*; Morris Alness*; Paul Addie; George Bertak; E. E. Bishop; Geo. Blankenship; John Bloomingdale; James Boggs; Russell Boles; M. D. Bright; F. C. Brown; Anton Cable; Roy Ellis; J. A. Evans; Cecil Gup-till; Leon Hess; G. T. Hunt; Einer Malmo.

Lawrence Minish; Ralph Morris; Kenneth McMillen; Albert Nagel; Reginald Osborne; R. L. Powers; Burdette Redding; Robert Reid; Bud Richardson; W. C. Richter; Wm. Scott; Elmer Siefert*; Milo Silva; Fred Staeger; Everett Ulrich; Win Williams, and Lawrence Zeits.

*Means the recipient is in the armed services.

Bernard Mullaney and Max Loomis, personnel and safety supervisors, made arrangements for the dinner.

History of Construction and Developments At the Port Townsend Division

● The Port Townsend mill of Crown Zellerbach Corporation has grown remarkably in 15 years. It now has a payroll of about 500 employees. Its principal products are kraft liner board, wrapping and bag paper, all essential war products. Its daily capacities are 295 tons unbleached sulphate pulp and 170 tons of sulphate papers and 120 tons of board.

Part of its product is converted at the Sumner, Wash., plant of Fibreboard Products Inc. It was stated in the program of the recent Port Townsend anniversary dinner that:

"If you see a corrugated or solid kraft fiber shipping container with the Fibreboard mark on it you can then feel sure that the outside liner, which is normally kraft, was made in our plant here."

On October 28 the mill started up with a power plant, a pulp mill and a No. 1 cylinder kraft liner machine. In May, 1929, the steam plant and pulp mill were enlarged and a No. 2 forudrinier paper machine, reputedly the widest in the United States, started making multiwall bag paper. A bag factory, now with seven machines, was started in January, 1935.

Sawmills furnished chips for the mill at first. In November, 1943, Port Townsend started its own wood mill, now completed with the installation of the hydraulic log barker.

Following is a report on the 1928-1929 original construction at Port Townsend, published in the June, 1929, issue of PACIFIC PULP & PAPER INDUSTRY:

"Port Townsend experienced a most hectic boom in the late 'eighties'. It was in those years that the transcontinental railroads were pushing out their lines to the Pacific Northwest and great was the speculation regarding western terminal cities. Many thousands pinned their faith and fortune on Port Townsend because of its commanding position at the northeast corner of the Olympic Peninsula at the entrance to Puget Sound. A magic city arose in the years 1888 and 1889. Port Townsend was called the 'key city' by those enthusiasts of the late 'eighties.' A railroad was pushed south. Then came a series of international events which reflected sadly upon Port Townsend. The bubble burst and left only a ghost city and ruined hopes. The doldrums settled upon Port Townsend and in this state of coma it rested until 1927.

"In 1927 a new element cast its shadow upon the ghost city. There was a rapid quickening of interest as a rumor circulated that the Zellerbach Corp. executives were looking with some favor upon Port Townsend as the possible location of a pulp and paper mill. It developed then that, other conditions being favorable, if a sufficient supply of industrial water could be developed Port Townsend had an excellent opportunity to secure a fine modern pulp and paper mill which would give the community a real sizeable steady payroll.

"A number of very active citizens in Port Townsend took hold and some things which approached the dramatic transpired. E. A. Sims, one of Port

Townsend's leading citizens and a widely known character of the Pacific Northwest, more or less took matters in his hands and put Port Townsend quite forcefully before the Zellerbach group. Followed interviews and conferences in which the paper interests virtually agreed that if Port Townsend would build an industrial water system a mill would be located at Port Townsend.

"Building of a water system involved some legal handicaps such as a bond issue, however, and such matters often mean much delay. Mr. Sims and his cohorts made a canvass of Port Townsend and lined up citizens almost 100% behind the bond issue. A petition was circulated in which virtually all of the eligible voters of Port Townsend affixed their signatures in favor of building an industrial water system backed by bonds of the community. This entire petition was sent in a 3,000-word telegram to the Zellerbach headquarters in San Francisco.

"Legal formalities followed in which Port Townsend voted officially for the bond to finance a 31-mile industrial water system trapping the Quileenc River to bring a daily flow of some 14,000,000 gallons of water into Port Townsend. The formal bid of the company for the purchase of the water supply was duly accepted.

"With legal hurdles cleared, events transpired in rapid-fire order. Brubaker Aerial Surveys of Portland supplied preliminary data for the engineering crews

and construction of the 31-mile pipe line began with a vigor.

"In the early fall of 1927 the pile drivers began a day-and-night thumping on a tideland site about three miles south of the city of Port Townsend and the world was informed that the National Paper Products division of the Crown Zellerbach Corporation would build a 100-ton kraft pulp and paper mill for the manufacture of kraft test liners. The work was to be handled by V. D. Simons, consulting engineer of Chicago, who has supervised the engineering and construction of a number of major mills on the Pacific Coast.

"Such was the start. Today Port Townsend is a city with new life, a community with industrial consciousness, boasting not only the largest and most modern kraft mill on the Pacific Coast but claiming also the largest kraft paper machine in the world, a 251-inch four-

drinier designed to operate at speeds up to 1,000 feet per minute.

"It will be remembered that the Port Townsend mill was to be a 100-ton unit. But before the first unit was completed with the blowing of the first digester on October 6, 1928, plans had been laid and construction started on a new unit, exactly doubling the size of the original mill. On May 15, 1929, the paper machine in the second unit went into production, giving to Port Townsend a completed mill with a capacity of 200 tons daily.

"In the wake of the paper mill has followed a boom in general building, with addition of a number of commercial buildings and 150 new homes. Today Port Townsend is one of the liveliest communities in the Pacific Northwest, definitely on the industrial map. Pulp and paper did it.

"In general, real recognition is made at Port Townsend of the fact that the

power plant is a highly important unit in pulp and paper manufacture, and that efficient, modern and economical production of steam and power is just as essential as the application of modern engineering to the manufacture of pulp and paper itself.

"Speaking of the mill in general it has been the aim in designing to eliminate as much as possible the rule of thumb and substitute exact science and technical control. A well equipped laboratory is an important part of the mill. Recording instruments are used in many steps of the manufacturing process.

"Construction of the mill came under the immediate supervision of H. N. Simpson as resident engineer for V. D. Simons. The resident manager is A. B. Lowenstein. Construction of the two units were carried out by separate contracting companies, the second unit being erected by Chris Kupplers' Sons, a firm that has erected a number of other units on the Coast."

J. D. Zellerbach Announces Objectives Of His Company's Postwar Planners

PRESENT at the fifteenth anniversary of the Port Townsend, Wash., kraft mill was President J. D. Zellerbach of Crown Zellerbach Corporation, and not only did he look back across sixteen years to the beginning of the planning for the mill—but he revealed to the employees and community representatives present at the banquet the fact that the corporation is looking far ahead.

A Postwar Planning Committee composed of top men in sales, production, research, forestry and industrial relations of Crown Zellerbach Corporation has been active for a year, said Mr. Zellerbach in a talk preceding service pin presentation and personal congratulations to 100 veterans of the Port Townsend plant.

"This committee is searching for and studying new grades, new quality and new types of paper to fit into new markets," he said.

"We are also searching for new



J. D. ZELLERBACH, President of Crown Zellerbach Corporation: "Our Postwar Planning Committee is searching for new grades, new quality of paper, outlets that are less competitive, pulpwood in perpetuity."

and reliable outlets for our products, especially in grades that are less competitive, so therefore the sales department is one of the important links in this program.

"Also represented on this Postwar Planning Committee is our timber department, planning for a timber supply for an indefinite period ahead—'pulpwood in perpetuity' is what Vice President Don S. Denman has called it," continued Mr. Zellerbach. "He hopes to have timber assured of growth and availability in the future that you and I may never see harvested, but which will provide the raw material to keep these mills operating and communities thriving for many, many years."

In addition to the postwar committee, which meets at a central point for several days every two months, there are sub-committees on postwar planning in the mills, laboratories, wholesale departments and converting plants, Mr. Zellerbach stated. He urged the employees to



SOME OTHERS ATTENDING THE PORT TOWNSEND DINNER are grouped together in this picture: (Left to right) RAYMOND A. DUPUIS, Resident Manager of the Port Angeles Division of Crown Zellerbach Corp.; RAY SCOTT, Editor, Port Townsend "Leader;" LEONARD ZIEL, Assistant Resident Manager of the Port Townsend Division; BERNARD MULLANEY, Personnel Supervisor; MAX LOOMIS, Safety Supervisor; GEORGE BERTAK, Checker in the Finishing Room, and J. H. QUIGLEY, Paper Mill Superintendent.

send in any suggestions they had for postwar activities.

"We want your suggestions for postwar," he said. "Send them in—suggestions for five years from now or ten years from now."

Recalls How Mill Started

Mr. Zellerbach lauded the enterprise of Port Townsend business leaders who "sold us on Port Townsend as a site for the kraft mill." Mentioned were Dr. O'Rear and James Coyne, who since have died. Present at the banquet were Charles Bartlett and William Dailey, who were cited as taking an important part in attracting the mill to Port Townsend.

"Sixteen years ago when I came here and sat on a log at Glen Cove and looked out on the mill site that some of our friends had talked about and had shown us on blueprints, I shook my head," said Mr. Zellerbach. "Part of it was under

water and it didn't look very promising to me. We had been considering a number of locations. You have to have a good wood supply, a good fresh water supply, a deep water site for transportation in order to compete in the paper market on the East Coast, and you must have a suitable townsite. Port Townsend had everything but fresh water. But the salesmanship of the leaders of this community won out. When they convinced us we could get water from the Big Quilcene and showed us that this would be an ample supply, we were sold. Thus, on a site that was sixteen years ago a deserted and desolate beach, we now have a thriving industry."

How thriving it is he cited by a few payroll figures, "In the first year of operation the mill payroll was \$350,000," he said. "On the fifth anniversary, the total payroll for the year 1933 was \$500,000. For 1938, the tenth anniversary, it was

\$725,000 and for 1943 the total payroll of the Port Townsend mill was \$1,250,000.

"What has been achieved here is due to cooperation among three necessary groups," he continued. "One is management to whom the stockholders have entrusted their funds. Management must take the risk for thousands of people for whom it is trustee. Then it needs a community which offers a suitable environment. And then it takes a corps of workers who will do their part to make the enterprise a success. What we have here is a three-sided cooperation—management, community and workers."

Mr. Zellerbach concluded by saying that a continuance of cooperation, plus application of postwar plans to Crown Zellerbach mills and plants, will "add up to an assured future for the company, the employees, and the community—for ourselves and for our children."

Port Townsend Anniversary Address

By ALBERT BANKUS*

Vice President, Crown Zellerbach Corporation.

AS one who has had a major interest and responsibility for maintenance of production in all Crown Zellerbach mills, I believe I have a true appreciation of the problems we have faced in operating during two World Wars.

Our greatest problem, as you well know, has been the shortage of man-power and the shortage of logs—the latter course is also simply a man-power problem.

We have been faced with shortages of raw materials and maintenance materials and supplies, which has made it necessary to exercise a lot of ingenuity in order to get by. I have often been amazed at the way in which you men here, and the fellows at all the plants, have gotten by and have maintained production by improvising with what little you have had to do with. It is a commendable accomplishment.

Because of war time conditions, through the medium of government controls, the freedom of action of both workers and industry has been materially restricted. To the extent that this is in the interest of the war effort, no one has justifiable grounds for complaint. The effect however, has been to make operation of industry very difficult, except where working under high priorities.

It is going to be important that private industry, labor and government work hand in hand throughout the critical post-war adjustment period that every lost freedom be restored as promptly as economically feasible after peace is made.

The last issue of "Years of Paper" lists 138 employees of the Port Townsend mill as being in the armed forces of our country. That is approximately 25% of the

normal working force of your mill. It has been extremely difficult to find replacements for these men, due to manpower demands for construction projects in this area, and the demands of nearby war industries.

As a result of these conditions, there has existed for the past two years, what might be called an inflated labor market with wage rates all out of proportion, in many instances, for the skills involved. This condition has caused many people to lose sight of the advantages of employment in a permanent industry or plant, such as ours, and to change from job to job with little thought of the future, seek to capture every monetary advantage as far as earnings are concerned.

Thus, with 138, probably more now, men in the armed forces, plus the other conditions mentioned, the management of the mill has found itself faced with a gigantic task in manning the mill, and this has been true of all of the company plants—at some plants the problem has been even more acute than here.

We have been able to carry on and produce vitally needed pulp and paper items only through the support and cooperation of Service Pin holders such as yourselves, who have stuck to your jobs. We have been able to do better than that—and by we, I mean both management and employees in the plant—we have even been able to take on a considerable volume of work outside of our normal field of operations, such as war work being done in the machine shop here at Port Townsend and the other mills of the company. This has been, and is, a substantial contribution to the war effort in relieving many bottleneck situations in the strictly war industry plants in the Northwest area. All this has been possible because you people have stuck to your jobs and demonstrated a willingness to work harder and to work longer hours.

It is not alone that you men and women have stuck to your jobs during these trying times. It is also that

*Address delivered at 15th anniversary dinner of Port Townsend, Wash., division of Crown Zellerbach Corporation at the Masonic Temple in that city January 15. Last October was actually the anniversary month but the dinner was also the occasion for handing out Service Pins and celebrating the inauguration of the new Crown Zellerbach whole log hydraulic barker. Mr. Bankus is in charge of operations of all Crown Zellerbach mills.

as some of the fellows have gone into the service, and others have left for what they considered "greener pastures." As new workers were secured to fill their places, you have been good soldiers and have patiently and ably taken over these new recruits and instructed them in their duties.

Another important contribution made by our Service Pin holders is the extent to which you have willingly put in extra hours on jobs other than your own in cases of shortage of workers. Without this contribution, several of our plant managers have told me that they just couldn't have kept things going.

Tribute to Soldiers

● At this point I want to give recognition to the valuable assistance rendered by many enlisted men of nearby Fort Worden, for I understand that on many occasions these men have, on their days of leave, reported for work at the Port Townsend mill, and filled many manpower shortage gaps. These things, I assure you, are deeply appreciated.

In recent weeks I have read and heard of and talked with men who have returned from various battle fronts throughout the world. Most of them are rather reticent about mentioning their experiences, but they have said enough to convince me that they have been up against almost unbelievable hardships and dangers. Several of them told of going for weeks without a bath or shave and working and fighting for days at a stretch without sleep, and of seeing their comrades in arms die by hundreds in battle. All of us here at home owe it to these men on the fighting front to put forth our best efforts to produce the materials of war to the fullest extent of our abilities, even though it means harder work and longer hours.

At this point I want to make brief mention of the way in which the products of the Port Townsend mill are contributing to the war effort and to the critical civilian needs.

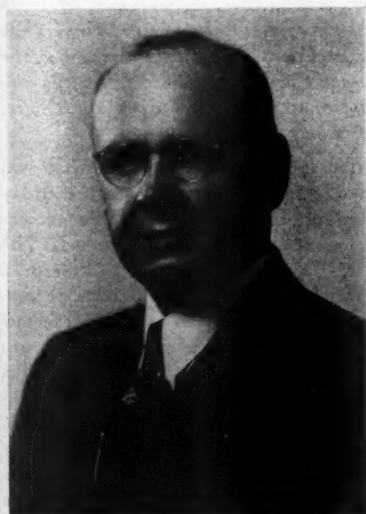
First, we have the product of the cylinder machine. By reason of the abnormal use of paper containers to package every conceivable kind of commodity that is

being shipped to our armed forces, and under lend-lease to our allied countries. In addition to the absolutely necessary civilian requirements, kraft liner board, such as you produce on your No. 1 machine, is rated by the War Production Board as a highly critical material, and a material in which there is a very substantial shortage.

Your No. 2 machine, as you know, makes principally grocery bag paper and multi-wall bag paper. The government has reduced the production of grocery bags to about 70% of normal, but it is believed that it will not likely be further materially reduced. That grocery bags are essential is well recognized by the War Production Board, and it needs no great stretch of imagination for any of us to realize the essentiality of that product. Fancy, for instance, our having to go to the grocery store with a tin pail every time we want two bits worth of sugar or other similar commodity. Grocery bags are only non-essential when they are used wastefully or needlessly. When their use is reduced to a practical minimum, there can be no doubt of the essentiality of that product.

Now a word about multi-wall valve bag paper. That is one of the products that formed the basis of tonnage for your No. 2 machine when it was installed. Originally we thought of this paper and referred to it simply as cement bag paper, for at that time it was used almost entirely for cement sacks. Of course, it is still used in large volume for cement bags, but through the aggressive sales and research work on the part of the bag manufacturers, and influenced greatly by the serious scarcity of jute and cotton by reason of war time conditions, the use of multi-wall bags has been extended to a multitude of other products. Now there are no less than 306 different products that are packaged in multi-wall paper bags. There is no doubt that this list will continue to grow.

To the men and women who work on the production front, the Port Townsend mill is playing an important part in this battle of production. While we have had to work harder and longer to hold up our end, the past two years have brought higher wages, greater earnings



Left to right—ALBERT BANKUS, Vice President in Charge of Operations, Crown Zellerbach Corporation, who delivered the address published on these pages in recognition of more than 15 years successful operation of the Port Townsend mill; E. W. ERICKSON, Resident Manager of the Port Townsend Division of the Corporation, who was host at the celebration and who was praised by Mr. BANKUS for his part in development of the new hydraulic barker at that mill; and NORMAN A. LEWTHWAITE, one of a number of men from the Port Townsend mill who were mentioned by Mr. BANKUS for achievement in other locales. Mr. LEWTHWAITE is Resident Manager of the Charcoal Division of Crown Zellerbach Corporation in Seattle.

because of overtime hours, and an opportunity for workers to build up reserve funds that will serve as a cushion for the postwar period and its uncertainties.

Comments on Hydraulic Barkers

● This Service Pin dinner was timed so as to coincide with the completion and starting of the Port Townsend hydraulic log barker, and before I finish, I must say something of that.

First, let me say that the idea of barking logs hydraulically did not originate at Port Townsend. There have, for a period of years, been many attempts to accomplish this. To my own knowledge, attempts to bark logs hydraulically go back at least twenty-five years. I recall experiments being made at Camas and down at West Linn. In the early twenties we installed a six stage pump, I think it was, that delivered water at, I think, 300-lb. pressure. We loaded logs on to the carriage of the wood mill, where the logs could be rotated or turned, and also moved lengthwise. When we applied the 300-lb. pressure stream, if we left it there long enough, the bark would come off. But it did not look like a practical proposition. Anyway, we failed to follow through. For one thing, I don't think that at that time, centrifugal pumps, providing present day pressures, were available.

Today there are two outstanding developments of

Highlights From Mr. Bankus' Address—

"It is going to be important that private industry, labor and government work hand-in-hand throughout the critical postwar adjustment period."

"We have taken on a considerable volume of work outside our normal field of operations, such as war work in the machine shop . . . relieving many bottleneck situations in the strictly war industry plants."

"I want to give recognition to the valuable assistance rendered by many enlisted men of nearby Fort Worden who, on their days of leave, reported for work and filled many manpower shortage gaps."

"By reason of the abnormal use of paper containers to package every conceivable kind of commodity, kraft liner board, such as you produce on No. 1 machine, is rated by the WPB as a highly critical material."

"Your No. 2 machine makes principally grocery bag paper and multi-wall bag paper. That grocery bags are essential is well recognized by the WPB . . . imagine having to go to the grocery store with a tin pail every time we wanted sugar."

"Originally we referred to multi-wall valve bag paper simply as cement bag paper but . . . now there are no less than 306 different products that are packaged in multi-wall paper bags."

"The past two years have brought higher wages, greater earnings because of overtime hours and an opportunity for workers to build up reserve funds for the postwar period."

PACIFIC PULP & PAPER INDUSTRY

More Highlights From Mr. Bankus' Address—

"Today there are two outstanding developments of the hydraulic log barker. The Weyerhaeuser Timber Company at Everett, Wash., have a barker that is an excellent job . . . the other barker is the one you fellows have developed here."

"The 'daddy' of this Port Townsend machine is Harry E. Bukowsky (plant engineer). Bukowsky had an idea. By his persistence and untiring effort, he developed step by step his plant . . . Your resident manager, E. W. Erickson, saw the picture and the possibilities . . . they finally were able to secure the backing of the corporation."

"Those of you who watched the development of the hydraulic log barker have seen the ultimate in improvising . . . the major portion of the materials were secured from the second hand market and from junk piles."

"When the Chemical Warfare Division found themselves with a charcoal plant in Seattle on their hands and being unable to produce the much-needed charcoal for gas masks, either in satisfactory quantity or satisfactory quality, they asked Crown Zellerbach Corporation if they wouldn't take over the operation of this plant for them. Norman Lewthwaite was selected to do the job, and with the able assistance of Mr. Erickson, has put the charcoal plant on its feet."

"I feel we can best contribute to the conduct and successful conclusion of the war by staying on the job we know best."

the hydraulic log barker. The Weyerhaeuser Timber Company at Everett, Wash., after many years of engineering research and experimentation, have a hydraulic log barker that is an excellent job, but as you know, the principles employed are different and the pressures employed are much higher than in your installation here, and it is a much more expensive job.

The other hydraulic log barker is the one that you fellows have developed here, and which you see today as a finished installation. It is a commendable accomplishment and one of which we are all very proud. The "daddy" of this Port Townsend machine is Harry E. Bukowsky (plant engineer), and he has particular reason to be justly proud. Bukowsky had an idea. He saw in his mind a picture, and by his persistence and untiring effort, developed, step by step, his plan for this development until he secured the backing of the resident manager, Mr. E. W. Erickson, who also saw the picture and the possibilities of such a machine. Finally they were able to secure the backing of the corporation's appropriation of funds necessary, until you see today the completion of that development.

I talked a while ago about the way in which we have had to improvise to carry on because of the lack of ordinary materials and supplies. Those of you who watched the development of the hydraulic log barker, have seen the ultimate in improvising, for in this sub-

stantial development of the log barker, the major portion of the materials used were secured from the second-hand market and from junk piles and put together for use by the ingenuity and craftsmanship of Port Townsend mechanics.

Now, in observance of the fifteenth anniversary of the Port Townsend mill, I like to think of the mill, not as a mass of steel and mortar, but of what it has and is producing, and in that, not alone products for sale, to which I have already made reference, but also the men it has developed. The men and women here of the Port Townsend organization, you know too well to require comment. All I shall say is that they are a fine, capable bunch, and we are proud of them. There are however, other men that were developed at Port Townsend, or got much of their training here, and I do want to briefly mention some of them. These men, because of their qualification, were selected for other important work elsewhere.

Port Townsend "Alumni"

The first one I shall mention is Al Layton, your first manager, who was taken from Port Townsend to New York and Carthage, N. Y., and who carried out a difficult task in the east with credit to himself and to his company. He was later made a vice president of the corporation and as you know, is on leave of absence in the service of the United States Navy.

I also want to mention Ivan Wallitner, known to most of you as "Ike." Ivan was one of the most promising young men we had, and it was a great misfortune to each one that he was to pass on while so young.

Other Port Townsend men who have gone elsewhere are C. A. Grondona, who went to Carthage and became manager, and as you know, is now representing the company in New York on important matters.

And then there is Pete Sinclair, the present manager at Carthage, who has done a creditable job there.

Others I shall mention just briefly:

Ronny Benson and Geisinger and Glen Loftus are Port Townsend boys who are now at Carthage and doing good work. Then there was Bill English, now deceased, who went from here to Carthage.

There is Hugh Burdon. While Hugh did not begin his career at Port Townsend, he did spend considerable time and received a good deal of his training here as your office manager. Hugh is now in charge of the office at Camas, which is, without doubt, the toughest office manager job in the organization, and Hugh is giving a good account of himself.

Then there is Chuck Carr, who is giving a good account of himself as power plant engineer at Rayonier, Fernandina.

And last, but not least, I want to mention the name of Norman Lewthwaite. When the Chemical Warfare Division found themselves with a charcoal plant in Seattle on their hands, and being unable to produce the much needed charcoal for gas masks, either in satisfactory quantity or satisfactory quality, they asked Crown Zellerbach Corporation if they wouldn't take over the operation of this plant for them. When this move was made, Norman Lewthwaite was selected to do the job, and with the able assistance of Mr. Erickson, Norman has put the Charcoal Plant on its feet and operated it to the entire, and I might say, enthusiastic satisfaction of the Division of Chemical Warfare.

I could go on at considerable length along this line, but I have said enough to indicate that the Port Townsend plant has demonstrated its ability to produce, not only pulp and paper, but also to develop men.

As already mentioned, we have just gone through two very trying years, and while the news from the battle fronts is encouraging, we should not become too optimistic, as we still have to face many problems before the war has successfully ended.

I feel we can best contribute to the conduct and successful conclusion of the war by staying on the job we know best, and by carrying on as you men and women have during the past.

Swedish Pulp Salesman Arrives in U. S.; Norwegian Predicts Markets for All

● A half dozen Swedish industrialists, including Costa Hall, the assistant sales manager of the Swedish Pulp Company, arrived in Philadelphia in mid-January for talks with American importers and exporters on possibilities of resumption of business after the war.

Western pulp producers, who have been supplying eastern mills through the war years when foreign imports of pulp were unavailable, are interested in any attempts Scandinavian countries may make to recoup eastern markets and also their intentions regarding other competitive world markets.

The plans of the Swedish visitors were not disclosed in the dispatches reporting their arrival. They came to the United States on a Swedish motorship which was chartered by the Red Cross to carry packages to Europe for United States soldiers who are prisoners of war.

Lieutenant V. Ullmann, of the Norwegian air force and well known in the Norwegian pulp industry, in a recent talk before the Ottawa branch of the Technical Section of the Canadian Pulp and Paper Industry, predicted that there will be "no life and death struggle on

the pulp market after the war as many people are inclined to fear."

"We (meaning North Americans and Scandinavians, presumably) will be very busy for years to come to supply the demands that are near at hand, we in Europe and you in America," he said. "Naturally we will meet, in South America, in India, in South Africa, in China, in Russia, and other places that are located outside our own hemisphere, and I am glad for this aspect of future competition. It will be healthy, and we will meet on an equal footing, as soon as we have thrown out our uninvited guests, and made our home tidy again."

Lieut. Ullmann continued:

"I personally do not think it is rational for Norway to make first class pulp, and thereafter send it around half of the globe to Japan or China, where it again is dissolved and made into rayon or cellophane. Neither do I think it is rational for a Canadian mill to produce good paper pulp, and send it all the way down to Florida, where it is disintegrated and dried once more in a thinner sheet to make paper. I believe those mills will have the greatest chances

in the competition that are making the best finished product, be it rayon, cellophane, board, paper or plastic.

"And there is no reason to fear an overproduction in the pulp industry, as far as I can see. The demands will be higher and higher, and when this war is over, we will see what amazing developments have been made within the plastic industry, for example. I believe we can safely extend our present factories to double capacity without facing any crisis.

"I think most of your gentlemen have heard about the Solozone bleaching method for groundwood, developed in the United States by the duPont Corporation. When sodium-peroxide again is available on the market, this method of making the simple mechanical pulp more valuable, will mean a lowered cost of paper for magazines, etc., which again without doubt will increase the demand for this product. Norway is the biggest groundwood exporting country in Europe, and we will certainly utilize this opportunity of increasing the value of our output."

Big Postwar Expansion Program Is Announced by Powell River Company

Bleach plant, kraft mill, board plant and shingle mill, as well as facilities for making laminated paper products and improvements in wood preparation department are included in construction plans costing up to \$13,000,000.

ONE of the first major pulp and paper producers in the Pacific Northwest to announce a broad program of postwar expansion is Powell River Company, which in addition to being the coast's leading newsprint manufacturer has entered into the production of sulphite pulp, laminated boards and aircraft lumber.

How speedily the program is carried out will depend on when the war is ended and necessary equipment and materials are released for peacetime industry. Some of the main features of the program as announced by President H. S. Foley prior to his departure on a trip that will carry him to eastern Canada and south to Texas are as follows:

1. Reconstruction of sawmill facilities and installation of a hydraulic barker designed to increase effective log utilization by at least 20 per cent.
2. Construction of a board plant and shingle mill to utilize timber not now used at the Powell River mill.
3. Construction of a kraft mill to absorb some of the Douglas fir and cedar and other surplus material not otherwise used in pulp manufacture.
4. Completion of a partly constructed bleach plant to permit production of high grade bleached sulphite.
5. Addition to present facilities for the manufacture of laminated paper products.

By-Products From Waste Materials

● It is considered likely that certain of the most promising prospects for the manufacture of by-products from waste materials are as follows:

1. Construction of a plant to produce yeast from waste sulphite liquor.
2. Installation of a magnesia base process in connection with the sulphite plant in order to permit recovery of sulphur and potential fuel at present being wasted in sulphite liquor.
3. Production of tannin (tanning material) from bark. The low wood content in bark from the new hy-

draulic barker which it is proposed to install should make tannin production an attractive possibility, it is stated.

Estimates of the cost of this program range as high as \$13,000,000, and it is hoped that most of the project will be carried out over a term of four or five years.

Pioneering Activities

● As previously described in PACIFIC PULP & PAPER INDUSTRY, the Powell River, B. C., industry has been pioneering in the field of fuller log utilization, and its experiment with Comox Logging & Railway Company at Ladysmith, B. C., in partnership with the provincial government, represents a long and significant step in that direction. Small logs from that operation are expected to reach Powell River in

steadily increasing volume during the coming year, and the company's technical staff headed by Control Superintendent Harry Andrews has been working on plans for the most effective use of this material at the mill.

It is realized that logs of several species and various grades will be received at the mill, and diversification of the company's production, as announced by Mr. Foley, is designed to reduce waste to a minimum. The company's whole plan for the future is geared to the demands of an era when practically every part of the tree is turned to commercial use.

Meanwhile the company is carrying on, simultaneously with the technical research program, a thoroughgoing analysis of world markets to show how Powell River Company may be able to extend the field of sales for its growing number of products.

Final Negotiations For Alcohol Plant

● Contrary to some reports early this month, the final negotiations for construction of an industrial alcohol plant in connection with the Puget Sound Pulp & Timber Company unbleached sulphite pulp mill at Bellingham, Wash., had not yet been completed when this issue went to press.

Approval of the War Production Board and of local war agencies however, had been obtained.

Under the plans, the carbohydrates in the pulp mill effluent would be recovered and converted into alcohol by orthodox alcohol producing equipment, similar to the alcohol plant which went into operation last summer at the Ontario Pulp & Paper Company mill in Thorold, Ontario.

The alcohol production from the Thorold plant is being used in manufacture of explosives, rubber and other critical war materials. It is understood similar use would be made of the product from the Bellingham mill.

It is contemplated that the Bellingham plant, if built, will produce two million gallons of alcohol per year.



WAYNE PENDLETON, formerly manager of Straits Lumber Company, Nanoose Bay, B. C., has been appointed manager of the Vancouver, B. C., office of Sorg Pulp Company, operating a kraft mill at Port Mellon, Howe Sound. He is a member of the well known lumbering family of Pendletons headed by his father, F. R. Pendleton, president of Mohawk Lumber Co., New Westminster. Three of his brothers are in the industry in the Northwest.

Bartsch Elected President of Rayonier; Mills Heads Executive Committee

● Edward Bartsch, of New York, was elected president of Rayonier Incorporated, operators of pulp and paper industries in Washington and Florida, at a board of directors meeting in San Francisco January 27.

Mr. Bartsch had served for four months as executive vice president of the organization.

Edward M. Mills, for nearly a quarter of a century a pioneer in the development of the industry on the Pacific Coast and in Florida, retired as president and was elected chairman of the company's executive committee.

In recent months, Mr. Bartsch had been actively engaged in making a thorough-going study of all the problems of his own company as well as inquiring as to what might be done to advance the pulp and paper industry as a whole. Twice in the period since he succeeded J. D. Zellerbach as executive vice president, Mr. Bartsch visited Seattle and the Pacific Northwest, conferring with many industrial and civic leaders. He was in Seattle just before his elevation to the presidency.

Mr. Bartsch was connected with the Chase National Bank since 1921, more recently as vice president in charge of the bank's business in the far west. Educated at Columbia University and the New York Institute of Accountancy and Law, he served in the U. S. Navy in World War I.

Coming to the United States as a young man from Wales, Mr. Mills became an expert accountant and was engaged in reorganizing of businesses for investment bankers. He came to the Olympic Peninsula in 1920 as junior partner in Peabody, Houghteling & Company, to try to find an outlet for the power of the bankrupt Olympic Power & Paper Company, which had power but no paper production. As a result, the Washington Pulp & Paper Corporation was formed with Mr. Mills as general manager. From that date he has been a leading and dynamic figure in the pulp and paper industry.

He spent the years 1923-25 putting the mills at Port Alice and Woodfibre, B. C., on a paying basis. In 1924 he became vice president of Zellerbach Corporation and in 1928, with the formation of the Crown Zellerbach Corporation, he



EDWARD M. MILLS (left), who led Rayonier Incorporated to its premier position as producer of dissolving pulps, has resigned as President of that company and EDWARD BARTSCH (right) was elected to succeed him at a board meeting in San Francisco January 27. Mr. MILLS was elected chairman of the company's executive committee.



became its executive vice president. He resigned this position January 1, 1936, to devote his entire time to the three companies which later merged as Rayonier Incorporated.

Mr. Mills projected the Rayonier mills in Washington state and Florida, and his vision was largely responsible for Rayonier Incorporated becoming the world's largest producer of dissolving pulps.

Mr. Bartsch's close association with Rayonier goes back over a number of years and he had been to the Northwest on different occasions before becoming a leading officer of the organization.

Two Papers By Coast Men At National TAPPI

● New York was the Mecca of the United States pulp and paper industry manufacturers, salesmen, technical men, engineers and government men during the week of February 14. A representative of PACIFIC PULP & PAPER INDUSTRY went east to cover the meetings for our March issue.

At an "Industry Forum" on February 16 at the Waldorf-Astoria, three key WPB men—Rex W. Hovey, director of the paper division, David Graham, director of pulp allocation, and James L. Madden, assistant to Mr. Hovey, in charge of pulpwood—were scheduled to address the American Paper and Pulp Association on the subject of government policies.

The national TAPPI meetings for the week at the Commodore were scheduled to feature two papers by Pacific Coast technical men.

E. P. Wood, technical director, Pulp

Division, Weyerhaeuser Timber Company, Longview, Wash., was listed for a paper entitled "The Cupriethylenediamine Viscosity Method as a Control in the Manufacture of Pulps of Specified Viscosity." Ray S. Hatch, director of research for the Weyerhaeuser Pulp Division, was chairman of the Viscosity Testing Methods Session.

Dr. W. F. Holzer, central technical department, Crown Zellerbach Corp., Camas, Wash., was scheduled to discuss "Limits of Acid Concentration—Digester Pressure Relations in Sulphite Pulping" at the Acid Pulping Session. The chairman was George H. McGregor, of the U. S. Forest Products Laboratory and a former west coast sulphite superintendent.

In the Plastics Session, Alfred H. Stamm, of the Forest Products Laboratory, was to discuss "Plastics and Wood Products" covering the subject of a paper by him in this issue of this magazine.

R. B. Wolf, manager of the Pulp Division, Weyerhaeuser Timber Company; Dr. D. L. Shinn, Central Technical Department, Crown Zellerbach Corporation, Camas, G. H. Gallaway, technical director of the Camas mill, and Al Quinn, Stebbins Engineering Corp., were other westerners on hand for the sessions.

Springfield Is Site For Wood Chemical Plant

● Springfield, Ore., has been chosen as the plant location for the Wood Chemical Company, incorporated last November under the name of the Willamette Valley Wood Distillation Company, according to Orville Miller, vice-president of the new company and former president of the West Coast Lumbermen's Association.

The new, modified "Scholler" process plant will produce industrial alcohol, yeast proteins for feed, plastic materials, and other by-products from waste wood obtained from sawmills.

Big Coast TAPPI Meeting Hears About "Cellulose Age" and Studies in Dyes

PACIFIC SECTION, TAPPI, held one of its few-and-far-between wartime dinner meetings at the country club on the southern outskirts of Everett, Washington, on the evening of February 1. An unexpectedly large attendance of 114 men, representing nearly all the mills in Washington and Oregon as well as many equipment and supply companies filled the long dining room tables to capacity.

The widely heralded "Cellulose Age," in which woods industries are becoming increasingly active, came in for attention in both a talk and movie. The science of dyes was also a subject of discussion.

Joseph L. McCarthy, instructor in chemical engineering at the University of Washington, discussed "Polymers and the Pulp and Paper Industry." The theme of his talk was that in the years to come we can expect a trend downward in the price of cellulose derivatives because markets will widen. Better scientific knowledge of the polymeric and surface characteristics of cellulose will bring about an improvement in techniques, he predicted.

E. H. Nunn, technical supervisor, West Linn, Ore., division, Crown Zellerbach Corporation, discussed "Subtractive Effect in Dyeing Paper." He pointed out the desirability of changing shades by removing complimentary colors to produce



JOSEPH L. MCCARTHY, Instructor of Chemical Engineering, University of Washington, who discussed "Polymers and the Pulp and Paper Industry" at the Coast TAPPI meeting in Everett.



ED H. NUNN, Technical Supervisor, West Linn, Ore., Division, Crown Zellerbach Corporation, who presented a paper entitled "Subtractive Effect in Dyeing Paper" before the Pacific Section of TAPPI in Everett on February 1.

brighter shades at lower costs. He showed how this could be accomplished by a study of reflectance curves on papers.

A color movie entitled "This Plastic Age" was shown. It depicted new uses for plastics, particularly the cellulose, and also growth of the plastics industry and its processes. The commentator for the film, whose voice was carried on the sound tract, made a remark that "cellulose acetate has created an industrial epoch in itself" and he commented on the many important uses of ethyl cellulose plastics, also. To an increasing extent, these plastics are being made from wood cellulose.

(The complete papers by Dr. McCarthy and Mr. Nunn will be published in future issues of this magazine, as soon as they are ready for publication. A further discussion of Dr. McCarthy's talk is included in this article.)

Enghouse Presides

● Clarence Enghouse, chairman of the Pacific Section of TAPPI and assistant manager of the West Linn mill, opened the meeting by thanking the management of the three Everett pulp and paper mills for permitting tours of their plants by visiting TAPPI members and their guests. During the day, quite a num-

ber saw the whole log hydraulic barker and the whole log chipper in action at the Everett mill of the Weyerhaeuser Timber Company which was described in the May Review number of this magazine last year.

Mr. Enghouse then introduced four men who sat at the head table with him and the two featured speakers. These other four were Leo S. Burdon, general manager, Soundview Pulp Company, Everett; J. H. McCarthy, resident engineer at Soundview; Erik Ekholm, general superintendent, Puget Sound Pulp & Timber Company, Bellingham, Wash., and vice chairman of the Pacific Section of TAPPI, who arranged the program; Robert M. True, General Dyestuff Corp., Portland, who handled dinner reservations as usual as secretary-treasurer of the Pacific Section, and W. F. Holzer, central technical department, Crown Zellerbach Corp., Camas, Wash., a member of the Pacific Section executive committee.

Russell LeRoux, manager of the Everett pulp mill of Weyerhaeuser Timber Company, was also present.

Mr. Enghouse also introduced Harold Bialkowsky, technical director of the Weyerhaeuser mill at Everett, who arranged the dinner and services, and two other University of Washington members in attendance—Dr. H. K. Benson, head of the department of chemistry and chemical engineering, and Dr. H. V. Tartar, professor of chemistry.

Walter C. Jacoby, assistant technical director at Camas, then assisted Mr. Nunn in his discussion of the effects of combining colors in dyes by operating a slide projector. Color slides thrown on the screen showed results of experimental work done at West Linn in the technical laboratory. Parts of the spectrum and the varying reflectance curves of colors were discussed by Mr. Nunn as the basis for his methods of brightening shades of dyes at low costs.

Economic factors in production of cellulose products also were a main consideration of Dr. McCarthy of the University in the talk that followed.

He explained at the outset that he wished to show how "polymeric and surface characteristics of cellulose have a broad importance with respect both to the existing and to the future industries dealing with pulp and paper and cellulose derivatives."



PARTICIPANTS IN THE TAPPI, Pacific Section, Dinner Meeting in Everett February 1—

Top row (left to right)—CLARENCE ENGHOUSE, Chairman of the Pacific Section and Assistant Resident Manager of the West Linn, Ore., Division, Crown Zellerbach Corp.; **HAROLD W. BIALKOWSKY**, Technical Director, Pulp Division, Weyerhaeuser Timber Co., Everett, who made arrangements for the dinner; **Dr. H. K. BENSON**, head of the Department of Chemistry and Chemical Engineering, University of Washington, and **N. W. COSTER**, Technical Director, Soundview Pulp Co., Everett.

Lower row (left to right)—ERIK EKHOLM, Vice Chairman of the Pacific Section of TAPPI and General Superintendent, Puget Sound Pulp & Timber Co., Bellingham, Wash., who arranged the program; **ROGER E. CHASE**, R. E. Chase & Co., Tacoma, Wash.; **S. HAZELQUIST**, Assistant Technical Director, Pulp Division, Weyerhaeuser Timber Company, Longview, Wash.; **WILLIAM H. HAVERMAN**, Sulphite Superintendent at Weyerhaeuser mill in Longview, and **GERALD ALCORN**, Plant Engineer, Pulp Division, Weyerhaeuser Timber Co., Everett.

Identifies Polymers

● He identified polymers as "chemical substances of high molecular weight . . . a great number of atoms bound together . . . chemical substances built up of many identical or else very similar monomers."

Discussing the differences between different kinds of polymers, Dr. McCarthy said:

"Lignin is a polymer of a kind somewhat different from cellulose or hemicelluloses. In lignin we do not find the long threadlike kind of molecule. Indeed, the lignin molecule is a large one in that it contains a great many atoms. But the phenolic propane derivatives, which have been shown by the experimental work of Hibbert and others to comprise the monomeric units, seem to be linked together in three dimensions. The result is a large polymeric molecule which in physical form more closely approximates a relatively large sphere or an ellipsoid, than a thread or a chain."

Depolymerization of cellulose in the orthodox pulp and papermaking operations then was taken up.

"Because of the prevalence of

hydroxyl groupings in its structure, cellulose would be expected by the chemist to dissolve in water. Since this does not occur, he says that its insolubility is due to the fact that hydroxylic cross linkages hold together as insoluble large numbers of molecules, each of which is already a giant polymer.

"The whole range of empirical paper tests," he continued, "is concerned fundamentally with surface forces as well as polymeric characteristics. Beater changes in pulp, relate in part to mechanical fibrillation of the fiber to permit improved physical intertwining of fibers. Mostly, however, beater changes are concerned with the freeing of new surfaces. . . . Alkaline extraction or drying of cellulose fibers may bring about changes markedly affecting the surface or reactivity characteristics of cellulose fibers."

Advantages of Cellulose

● In connection with thermoplastic characteristics of cellulose, Dr. McCarthy quoted from a paper delivered last November in the east by Ralph H. Ball of the Plastics Division of the Celanese Corporation of

America, as follows:

"For the year 1943 it is believed that production of cellulosic plastics will reach 75 to 80 million pounds. For the same period the production of all rigid thermoplastics is expected to total 40 to 45 million pounds. The celluloses, therefore, account for between 60 and 65 per cent of the volume of rigid thermoplastics. If we extend this to include thermosetting plastics, the total of all rigid plastics this year (1943) will probably reach between 255 and 280 million pounds. The cellulosic plastics comprise approximately 30 per cent of this total, being exceeded in volume only by the phenolics."

In comparing cellulosic plastics, which may be made from wood pulp, with other plastics, Mr. Ball cites three advantages of the cellulosic plastics: (1) toughness, which permits molding of thin sections, (2) variety of formulations available, and (3) range of colors available.

Continuing his discourse, Dr. McCarthy said:

"Essentially in cellulose it seems to me that we have three primary advantageous characteristics which



AT TAPPI, Pacific Section, Dinner Meeting in Everett, February 1:

Left to right—

R. W. VAUGHAN, Chemist, Fibreboard Products Inc., Sumner, Wash., and JOHN SPERR, Plant Engineer, also at the Sumner mill.



Prof. H. V. TARTAR, Chemistry Dept., University of Washington, and ARCHIE P. RATLIFF, Jr., Technical Department, Pulp Div., Weyerhaeuser Timber Co., Everett.



B. Y. BRATT, Soundview Pulp Co., Everett, and ED R. BARRETT, A. O. Smith Corporation, Seattle.



D. L. SHIRLEY, Link-Belt Co., Seattle, and CARL SHOLDEBRAND, Sulphite Supt., Hawley Pulp & Paper Co., Oregon City, Ore.



A Puget Sound Pulp & Timber Co. group from Bellingham—ANDREW BALDAUF, GORDON BONHAM and GERALD GREEN. Looking over shoulders of the latter two is SIDNEY COLLIER.



C. R. KOCH, Westinghouse Electric & Mfg. Co., Seattle, and STAN E. RINGHEIM, Purchasing Agent, Crown Zellerbach Corp., Seattle.

give promise of sound and steady increase in the use of cellulose and cellulose derivatives in the future. Firstly, we have a long chain polymer which can be produced at practically any chain length below certain limits. Secondly, we have a long chain polymer the 'surface' or side groups of which we can vary almost infinitely. Based on adjustment of polymeric chain lengths of cellulose, and on regulation of the degree and nature of the surface groups of cellulose, we can make natural fibers, or regenerated filaments, or films, or plastic objects of widely different and useful properties.

"Probably there is no other one polymeric material, natural or synthetic, which has such diversified possibilities. Starch, the closest chemical relative of cellulose, appears to have a considerably shorter and somewhat branched chain length and as yet has not been found to have useful properties as filaments or films. Proteins require much additional study before their full possibilities become clear. Lignin chemistry is just beginning from an industrial point of view.

"Synthetic polymers, i. e. those produced by industrial polymerization in contrast to polymerization by living plants or animals, are usually designed for more or less specific purposes although naturally, an extremely wide range of properties can be secured by variation of the monomers, and of the degree of polymerization, and also of the degree and nature of side or surface groupings.

"Comparison of the possibilities of cellulose with those of the synthetic polymers leads us to the third advantage, which probably can be taken as in favor of cellulose. Although no fully rational basis can exist for predictions of future developments, one may speculate that during years to come the costs of production of cellulose derivatives will compare favorably with those of the synthetic polymers.

"Up to the present the production of cellulose derivatives has been conducted, in general, separate and apart from the production of pulp and paper," said Dr. McCarthy, in conclusion. "In the future, however, it may possibly be desirable for pulp and paper producers to give some consideration to the feasibility of manufacturing cellulose derivatives, possibly in conjunction with development of uses for the carbohydrates and lignin products which may in the future be produced from waste sulphite liquor or else from wood itself. We should not expect any revolutionary growth in the pro-

duction of cellulose derivatives. However, as knowledge of the possibilities become wider and as processing techniques improve, we shall see a sound and steady increase in the use of cellulose tailored to suit the needs of our civilization."

ATTENDANCE

● Attendance at the TAPPI Meeting, February 1, in Everett, totaled 114 men. Apparently one card was not turned in. Those present, according to the registration cards:

Gerald Alcorn, Pulp Division, Weyerhaeuser Timber Co., Everett, Wash.; A. H. Anderson, Pulp Division, Weyerhaeuser Timber Co., Everett; Harold W. Bialkowski, Pulp Division, Weyerhaeuser Timber Co., Everett; By Bratt, Soundview Pulp Co., Everett; Henry E. Becker, Soundview Pulp Co., Everett; Leo S. Burdon, Soundview Pulp Co., Everett; Chas. F. Bannan, Western Gear Works, Seattle; Dr. H. K. Benson, University of Washington, Seattle; Paul S. Billington, Pulp Division, Weyerhaeuser Timber Co., Longview, Wash.; Geo. H. Beisse, Pulp Division, Weyerhaeuser Timber Co., Longview; H. K. Berger, Everett Pulp & Paper Co., Everett; E. R. Barrett, A. O. Smith Corp., Seattle; Gordon K. Bonham, Puget Sound Pulp & Timber Co., Bellingham, Wash.; Andrew B. Baldaue, Puget Sound Pulp & Timber Co., Bellingham.

A. M. Buck, Pulp Division, Weyerhaeuser Timber Co., Everett; Percy Christensen, Pulp Division, Weyerhaeuser Timber Co., Everett; E. Christoferson, Soundview Pulp Co., Everett; Sidney M. Collier, Puget Sound Pulp & Timber Co., Bellingham; N. W. Coster, Soundview Pulp Co., Everett; John M. Carlson, Soundview Pulp Co., Everett; G. Cormier, St. Regis Paper Co., Kraft Pulp Division, Tacoma, Wash.; Claud B. Christiansen, College of Puget Sound, Tacoma; Al. M. Cadigan, St. Regis Paper Co., Kraft Pulp Div., Tacoma; R. E. Chase, R. E. Chase & Co., Tacoma; R. E. Draper, Pulp Division, Weyerhaeuser Timber Co., Everett; C. A. Enghouse, Crown Zellerbach Corp., West Linn, Ore.; Erik Ekholm, Puget Sound Pulp & Timber Co., Bellingham; O. E. Fox, Pulp Division, Weyerhaeuser Timber Co., Everett; H. C. Florence, Pulp Division, Weyerhaeuser Timber Co., Everett; Chester A. Fee, Pacific Pulp & Paper Industry, Portland.

A. P. Fredrickson, Agner & Fredrickson, Seattle; Arthur L. Fleenor,

Fibreboard Chemists Meet

When good chemists get together, there may or may not be a stein on the table but it's a cinch there's going to be a formula or two on the blackboard. Witness the meeting Dec. 13, 14 and 15 of chemists from Fibreboard Products Inc., held at Stockton, Calif. Reading from left to right around the table are: R. W. VAUGHAN, Sumner (Wash.) Division; E. C. JENNINGS, Antioch (Calif.) Division; NELSON Q. HARTNAGLE, Port Angeles (Wash.) Division; E. E. O'CONNOR, Antioch Division; H. L. RAMMER, Stockton Division; H. O. HAGEDORN, San Francisco main office; J. W. Blair, The Paraffine Companies Inc., who was a guest; B. F. BROWN Jr., Vernon (Calif.) Division; and WALTER TILCOCK, Stockton Division. The conference was held under direction of Mr. RAMMER to discuss problems common to plants, especially the weatherproof case which is now in such demand for use in overseas shipment by the armed forces.



Guests at the Fibreboard conference were the following Paraffine companies Inc. chemists besides Mr. BLAIR, R. L. NEWMAN and JOHN BYRNE.

Everett Pulp & Paper Co., Everett; Fred Gilmore, Puget Sound Pulp & Timber Co., Bellingham; A. S. Gerry, Pulp Division, Weyerhaeuser Timber Co., Everett; Al Graef, Pulp Division, Weyerhaeuser Timber Co., Everett; Donald Grant, Soundview Pulp Co., Everett; Irving R. Gard, Merrick Scale Mfg. Co., Seattle; Gerald F. Green, Puget Sound Pulp & Timber Co., Bellingham; S. Hazelquist, Pulp Division, Weyerhaeuser Timber Co., Longview; V. C. Haner, Puget Sound Pulp & Timber Co., Bellingham; L. R. Hartman, Pulp Division, Weyerhaeuser Timber Co., Everett; M. J. Hodson, Soundview Pulp Co., Everett; Norman Heglund, Soundview Pulp Co., Everett.

W. H. Haverman, Pulp Division, Weyerhaeuser Timber Co., Longview; C. H. Hoffman, Link-Belt Co., Seattle; H. A. Hauff, Pulp Division, Weyerhaeuser Timber Co., Longview; K. L. Howe, Westinghouse Electric & Mfg. Co., Seattle; W. F. Holzer, Central Technical Dept., Crown Zellerbach Corp., Camas, Wash.; R. M. Inkster, Pulp Division, Weyerhaeuser Timber Co., Everett; R. A. Johnson, Pulp Division, Weyerhaeuser Timber Co., Everett; Lester M. Johnson, Pulp Division, Weyerhaeuser Timber Co., Everett; W. C. Jacoby, Crown Zellerbach Corp., Camas; J. K. Kaufmann, Soundview Pulp Co., Everett; B. L. Kerns, Westinghouse Electric & Mfg. Co., Seattle; C. R. Koch,

Westinghouse Electric & Mfg. Co., Seattle; R. J. LeRoux, Pulp Division, Weyerhaeuser Timber Co., Everett; Earl C. LaFave, Pulp Division, Weyerhaeuser Timber Co., Everett; C. N. Linden, Pulp Division, Weyerhaeuser Timber Co., Everett.

R. P. Lungreen, Soundview Pulp Co., Everett; N. A. Lewthwaite, Crown Zellerbach Corp., Charcoal Div., Seattle; R. E. Le Riche, Minneapolis-Honeywell Brown Inst. Co., Seattle; J. R. Lewis, Coos Bay Pulp Corp., Anacortes, Wash.; Harold D. Lange, Cellulose Products Co., Tacoma; F. Daniel McGillicuddy, Jr., Rayonier Incorporated, Hoquiam, Wash.; Bain L. McKinnon, Puget Sound Pulp & Timber Co., Bellingham; Joseph McCarthy, University of Washington, Seattle; C. J. McAllister, Simonds - Worden - White Co., Portland; J. H. McCarthy, Soundview Pulp Co., Everett; T. E. Moffitt, Hooker Electrochemical Co., Tacoma; H. G. Mount, The Dicalite Co., Portland; J. H. Moak, Soundview Pulp Co., Everett; Murl Miller, Soundview Pulp Co., Everett; T. H. Moran, Pulp Division, Weyerhaeuser Timber Co., Everett.

E. H. Nunn, Crown Zellerbach Corp., West Linn; Austin Nickels, Hawley Pulp & Paper Co., Oregon City, Ore.; C. B. Niel, Everett Pulp & Paper Co., Everett; Oscar J. Olson, Boeing Aircraft Co., Seattle; Adolf Orup, Soundview Pulp Co., Everett; H. C. Rucker, Pulp Division, Weyerhaeuser Timber Co., Everett; John T. Purvis, Puget

Sound Pulp & Timber Co., Bellingham; Willis G. Peter, Hooker Electrochemical Co., Tacoma; C. D. Ries, General Electric Co., Seattle; Carl Reis, Pulp Division, Weyerhaeuser Timber Co., Everett; B. Rowell, Pulp Division, Weyerhaeuser Timber Co., Everett; Archie P. Ratliff, Jr., Pulp Division, Weyerhaeuser Timber Co., Everett; S. A. Ridpath, Pulp Division, Weyerhaeuser Timber Co., Everett.

E. D. Rich, Cellulose Products Co., Tacoma; James Ramsey, Everett Pulp & Paper Co., Everett; S. E. Ringheim, Crown Zellerbach Corp., Seattle; Clifford Reynolds, Coos Bay Pulp Corp., Anacortes; Daniel M. Robbins, Puget Sound Pulp & Timber Co., Bellingham; H. R. Russell, Everett Pulp & Paper Co., Everett; Thomas W. Stewart, Pulp Division, Weyerhaeuser Timber Co., Everett; Sidney Silverstone, Soundview Pulp Co., Everett; Harold Stoddard, Soundview Pulp Co., Everett; D. L. Shirley, Link-Belt Co., Seattle; C. Sholdebrand, Hawley

Pulp & Paper Co., Oregon City; Lawrence K. Smith, Pacific Pulp & Paper Industry, Seattle; Paul Smith, Everett Pulp & Paper Co., Everett; J. M. Shedd, Everett Pulp & Paper Co., Everett.

John Sperb, Fibreboard Products Inc., Sumner, Wash.; Walter A. Salmonson, Simonds-Worden-White Co., Seattle; S. A. Salmonson, Soundview Pulp Co., Everett; George Tostevin, Soundview Pulp Co., Everett; Dr. H. V. Tartar, University of Washington, Seattle; R. M. True, General Dyestuff Corp., Portland; R. W. Vaughan, Fibreboard Products Inc., Sumner; L. W. Wendt, Pulp Division, Weyerhaeuser Timber Co., Everett; Harold F. Warren, R. E. Chase & Co., Tacoma; Albert Wilson, Pacific Pulp & Paper Industry, Seattle; Adolph F. Winklesky, Everett Pulp & Paper Co., Everett; Herb Wymore, Crown Zellerbach Corp., Camas, and R. H. Young, Cellulose Products Co., Tacoma.



THE SOUNDVIEW PULP COMPANY in Everett, Wash., announced the appointment of **R. M. BUCKLEY** (above) as Vice-President. Before joining the company last March Mr. Buckley held executive positions in the War Production Board. Prior to that, until February, 1942, he was on the staff of the Kraft Pulp Division, St. Regis Paper Company, Tacoma, Wash. At present he is active in the New York office of the Soundview Pulp Company.

A native of Montana, Mr. Buckley is a graduate of the University of Washington. He is married and has a three year old son.

Bulkley, Dunton Official Dies

● Harold W. Knight, who was with Bulkley, Dunton Company for 20 years, died in Greenwich, Conn., on January 15. He left his widow, daughter, son and brother. Ensign Donald G. Knight, his son, is on duty with the Navy somewhere in the Pacific.

Mr. Knight was formerly mill manager of the King Paper Company in Kalamazoo.

Spokane Chronicle Aids Inland Empire Paper Co.

● The Spokane (Wash.) Chronicle went to bat for the Inland Empire Paper Company in the Millwood suburb of that city by giving away \$250 in prizes for waste paper collections during the months of December and January. There were five prizes of \$50 each given to the winning organization in five groups, namely, churches, schools, lodges, boy scout troops and girls' organizations.

The Inland Empire Paper Company, only able to operate at partial capacity, also is getting waste from Spokane stores and seeks a supply of 500 tons per month.

Competition in Montana

● Midwestern paper mills, through Minneapolis connections, have entered into competition along the continental divide in Montana with dealers who normally supply the Inland Empire Paper Company.

Despite the crossing of the mountains and the long haul to Minnesota and Wisconsin, some paper is going eastward from such Inland Empire counties as Silver Bow, Deer Lodge and Powell.



THE BULKLEY, DUNTON COMPANY, Inc., 295 Madison Ave., New York, recently held their annual holiday party at the nearby Duane Hotel. More than 150 persons attended. Above is a group around one of the tables. Those seated around the table (left to right) include: **JOSEPH BUCKLEY** and **WENDELL COWLES**, heads of the Paper division; **GEORGE COBEAN**, head of the Export division; **ARTHUR SCHROEDER**, President of the Pejepscot Paper Company, and **FRED ENDERS**, head of the Pulp division (who is closest to the camera).

PMMC Holds War Bond Drive Meeting



PICTURES TAKEN AT THE PAPER MILL MEN'S CLUB meeting in Los Angeles, January 20:

Upper left—Present and Past Presidents of PMMC (left to right: J. DWIGHT TUDOR, Fibreboard Products Inc.; PAUL R. RAAB, Lily Tulip Cup Corp.; A. C. HENTSCHEL, Johnson, Carvell & Murphy; NEIL B. SINCLAIR, Nashua Gummed & Coated Paper Co.; EDWARD N. SMITH, Edw. N. Smith Paper Co., and FRANK R. PHILBROOK, Graham Paper Co.

Upper right—Facing the speaker's table is MARVIN VANDERHEIDEN, Nekoosa-Edwards Paper Co., and the four nearest camera at the table are: GERRY A. THIEM, Milwaukee Lace Paper Co.; Mr. TUDOR (President); A. A. ERNST, Everett Pulp & Paper Co., and IRVIN DAMON, Northern Paper Mills.

Middle left—Left to right around the table: L. C. HARDEN, Camfort Paper Corp.; SHEARMAN GUE, Silklin Paper Corp.; JOHN BERUTTI, Schermerhorn Bros. Co.; CLIFF PIERSON, John H. Davis Co.; a guest (end of table); ROBERT C. MARQUIS, Atlantic Gummed Paper Corp.; GERRY A. THIEM, Milwaukee Lace Paper Co.; FRANK R. PHILBROOK, Graham Paper Co.; HAL D. CASSADAY, Pacific Waxed Paper Co.; PAUL R. RAAB, Lily Tulip Cup Corp., and H. R. PALMER, Palmer-Bingham Envelope Co.

Middle right—Left to right around the table: JOHN T. GARRETSON, St. Regis Paper Co.; FLOYD D. SMITH, Pater-son Parchment Paper Co.; A. C. HENTSCHEL and MARVIN VANDERHEIDEN, Johnson, Carvell and Murphy; IRVIN DAMON, Northern Paper Mills; LEE W. LAMBOY, West Coast Coverage Co.; PAUL R. MAY, Pomona Paper Products Co.; CHAS. L. BROUSE, Pacific Waxed Paper Co.; NEIL B. SINCLAIR, Nashua Gummed & Coated Paper Co., and EDWARD N. SMITH, Edw. N. Smith Paper Co.

In lower row of pictures (left to right)—FRED SCHROEDER, Sealright Pac. Ltd.; L. C. HARDEN, Comfort Paper Corp.; (in foreground of center picture) J. W. GENUIT, Fernstrom Paper Mills, Inc., with PAUL R. MAY, Pomona Paper Products Co., and Mr. DAMON, pleading for the Fourth War Loan Drive.

● Meeting downtown instead of at the customary outlying country club, the January 20th dinner meeting of the Paper Mill Men's Club of Southern California at the University Club, Los Angeles, was well attended in view of wartime conditions.

Twenty-seven members were present for the War Bond drive meeting and to listen to the eloquence of one of the southland's top-flight speakers, Tony Wahn, vice president, Pacific Outdoor Advertising Company.

Although there was a serious background for the meeting, it nevertheless proved to be one of the most enjoyable the club has staged in a long time, according to the opinion of those present. J. Dwight

Tudor, Fibreboard Products Inc., presided.

Aiding him were Vice President Ansel A. Ernst, Everett Pulp & Paper Co.; Secretary Gerry A. Thiem, Milwaukee Lace Paper Co., and Treasurer J. W. Genuit, Fernstrom Paper Mills Inc., who came in from Pomona for the gathering.

Keynote for the evening was sounded by Irvin Damon, chairman of PMMC War Bond drive. This campaign, for the purposes of allocation in the Los Angeles area, had been included in the activity of the Food Industry section, with Chairman Damon representing the paper industry within the general category.

Members pledged themselves, at the suggestion of Chairman Damon

to organize their various concerns with the object of subscribing designated quotas. Mr. Wahn, as general chairman of the Food Industries section of the drive (he has just retired as president, Los Angeles Sales Manager Association), delivered a stirring talk on the subject.

During the afternoon members had played golf and, following the close of the dinner, devoted themselves to the usual card games. Among those present were, in addition to Messrs. Tudor, Ernst, Thiem, Genuit and Damon:

Robert C. Marquis, Altantic Gummed Paper Corp.; John Berutti, Schermerhorn Bros. Co.; Shearman

Gue, Silklin Paper Corp.; L. C. Harnden, Comfort Paper Corp.; F. R. Schweder, Sealright; H. R. Palmer, Palmer-Bingham Envelope Co.; Paul R. Roab, Lily Tulip Cup Corp.; Hal D. Cassaday, and Chas. L. Brouse, Pacific Waxed Paper Co.; Frank R. Philbrook, Graham Paper Co.; Marvin Vanderheiden, Nekoosa-Edwards Paper Co.; Edward M. Murphy, A. C. Hentschel, and

C. N. Madigan, Johnson, Carvell & Murphy; F. D. Smith, Paterson Parchment Paper Co.; J. T. Garretson, St. Regis Paper Co.; Paul R. May, Pomona Paper Mills Inc.; Lee W. Lamboy, West Coast Coverage Co.; Cliff Pierson, John H. Davis Co.; Neil Sinclair, Nashua Gummed & Coated Paper Co., and Arthur W. Ponsford, Pacific Pulp & Paper Industry.

Stevenot Reviews 1943 Production

● Present paper shortage is caused by three other shortages: shortage of wood pulp for making paper, shortage of logs for making pulp, and shortage of labor to produce logs.

This point was emphasized by Fred G. Stevenot, president, Puget Sound Pulp & Timber Company, in his review of 1943 in the wood pulp industry.

United States pulp production approximated 9,050,000 tons in 1943, Stevenot said, which was 1,077,000 tons less than in 1942. The total consisted of 7,370,000 tons of chemical grades, 967,000 tons less than in 1942, and 1,680,000 tons of mechanical pulp, or 210,000 tons below 1942 output.

Imports exceeded exports sufficiently to add 965,000 tons to our total new supply in 1943, consisting of 213,000 tons of mechanical and 752,000 tons of chemical

pulps.

Consumption of wood pulp in 1943 exceeded available new supply. Stevenot stated that inventories were depleted between 47 and 73 per cent in various grades, reducing stocks to about one-sixth of normal at the year-end.

Production of sulphate pulp in 1943 was fairly well stabilized in relation to capacity, but sulphite production lost ground. In December sulphite output was down to 69.7 per cent of capacity, in comparison with 78.5 per cent at the end of 1942; sulphate operating rate of 76.8 per cent was exactly the same as at the previous year-end. These figures were in contrast with 100 per cent capacity operations in April, 1942, before the impact of the woods labor and log shortages were felt.

Fibreboard Personnel Changes Announced

● Due to the retirement of George W. Harter as manager of the Antioch, Calif., Division, Fibreboard Products Inc., W. Hawkey is now resident manager, and C. W. Stitt, assistant manager.

Mr. Harter had been with Fibreboard for the past 30 years—20 of them as resident manager at Antioch.

Mr. Hawkey has been with Fibreboard for more than 21 years. He started at the Stockton, Calif., Division working in the stores department. After three years in Stockton he went to the sales department in San Francisco, where he also did cost work.

From San Francisco, where he worked three years, Mr. Hawkey was transferred to the Sumner, Wash., Division, which he managed for 12 years. In 1942 Mr. Hawkey came back to Antioch.

Mr. Hawkey's hobbies are gardening, playing golf, and fishing.

C. W. Stitt, assistant manager at Antioch, was the former plant engineer at that division. He started with The Paraffine Companies Inc., in Emeryville, Calif., following his graduation from the University of California. At Paraffine, Mr. Stitt did general engineering work and was assistant to the plant engineer.

In May, 1927, he was granted a leave of absence to work for L. S. Rosener, a well known industrial engineer. Mr. Stitt was sent to the Antioch plant, which at that time was owned by The Paraffine Companies Inc. The Rosener company was doing some construction work at the Antioch plant on which Mr. Stitt was engaged.

After The Paraffine Companies Inc. and National Paper Products merged Mr. Stitt went to work for Fibreboard at the Antioch plant as plant engineer and has been there ever since.

He is married and has two children. One of his hobbies is municipal govern-



W. HAWKEY (left), Resident Manager of the Antioch, Calif., Division, Fibreboard Products Inc., and C. M. STITT, Assistant Manager at Antioch. Mr. HAWKEY succeeded G. W. Harter, retired. Mr. HAWKEY was formerly Assistant Manager and Mr. STITT was Plant Engineer. Their promotions were recently announced by N. M. BRISBOIS, Vice President in Charge of Operations of all Fibreboard mills.

ment and he has been mayor of Antioch twice, and at the present time is on the city council. He is also a sports fan.

Sommers Becomes Manager Of Los Angeles Mill

● F. R. Sommers has become resident manager of the California-Oregon Paper Mills at Los Angeles, which is a division of the Columbia River Paper Mills. He succeeded J. K. Hays, who resigned.

Mr. Sommers has been connected with the Columbia River Paper Mills-Oregon Pulp & Paper Company organization for some 15 years. After about ten years at Vancouver in office duties he moved to the Portland, Ore., headquarters as cost accountant for the company.

Mr. Sommers and his family moved to Los Angeles in January and he took charge at the Los Angeles plant, which makes sulphite and sulphate wrapping and parchment for fruit and vegetables.

J. K. Hays Resigns As Los Angeles Mill Manager

● J. K. Hays has resigned his position as manager and assistant secretary of California-Oregon Paper Mills, Los Angeles (division of Columbia River Paper Mills), to return to Florida. He was scheduled to leave around February 15, temporarily departing from the pulp and paper industry to attend to personal business interests.

Mr. Hays came to his Los Angeles position in March, 1943, after a number of years as general manager of the Columbia River Paper Mills' Florida plant.

Acquires New Boilers

The Pacific Paperboard Company, Longview, Wash., which has three paperboard machines, two of them acquired in the past two years, and which were described in the January issue of this magazine, has acquired two new boilers, giving the plant an additional 1,000-hp. A powerful whistle for emergency use also was installed.

Longview Fibre Timber

● The Longview Fibre Company, Longview, Wash., announced from Toledo, Ore., on February 7, purchase of a large area of Lincoln county timber land, including a 5,000 acre tract south of Taft, Ore. The land was formerly owned by five members of the Fosse family of Toledo. Total cost of the entire purchase is reported to have been in the neighborhood of \$100,000.

Archie L. Bolton Dies

● John W. Bolton and Sons, Inc., Lawrence, Mass., recently announced the death of their treasurer, Archie LeRoy Bolton, who, with his father, John W. Bolton, was one of the founders.

One of his sons, Archie LeRoy Bolton, Jr., continues in the business with W. W. Bolton, president.

MR. LUNDBERG'S ARTICLE ON ACID MAKING WILL RESUME IN THE MARCH ISSUE

Owing to pressure of his own business, calling for extensive travel, A. H. Lundberg, author of the book-length article, "Acid Making in the Sulphite Pulp Industry," was unable to supply an installment for this issue.

Installments will resume in our next issue in March. The installments have appeared in all issues beginning with January, 1943, excepting only the Annual May Review Number of 1943, and it is expected they will run through this year. They have aroused wide interest in the industry and many requests have been received for issues containing them.

Mr. Lundberg is western manager for G. D. Jenssen Company, New York City.

New Type of Coating Machine Is Installed At Schmidt Lithograph Company

Coated paper manufacturer at San Francisco installs new machine developed by Maine heating engineer. Uses Union Machine Company backstand and a newly developed airbrush made by S. D. Warren Company

NOW celebrating its seventieth birthday, the Schmidt Lithograph Company, San Francisco, is not only one of the West's oldest business enterprises, but it is also one of the most progressive firms on the coast.

The Schmidt clock tower, for generations one of the landmarks of San Francisco, has looked down on many changes since it was first built on one of the shoulders of Rincon Hill.

For instance, Rincon Hill itself is nearly all gone—moved to make way for the mighty span of the San Francisco Bay Bridge, but "Progress" is still one of the watchwords of the Schmidt Lithograph Company.

As evidence of this witness the stride forward in the coated paper department of the company. Long the only manufacturer of coated paper west of the Rockies, the Schmidt Lithograph Company is now manufacturing coated paper on a C. J. Merrill coating machine in conjunction with a S. D. Warren Company airbrush. It is one of the few such machines in the United States.

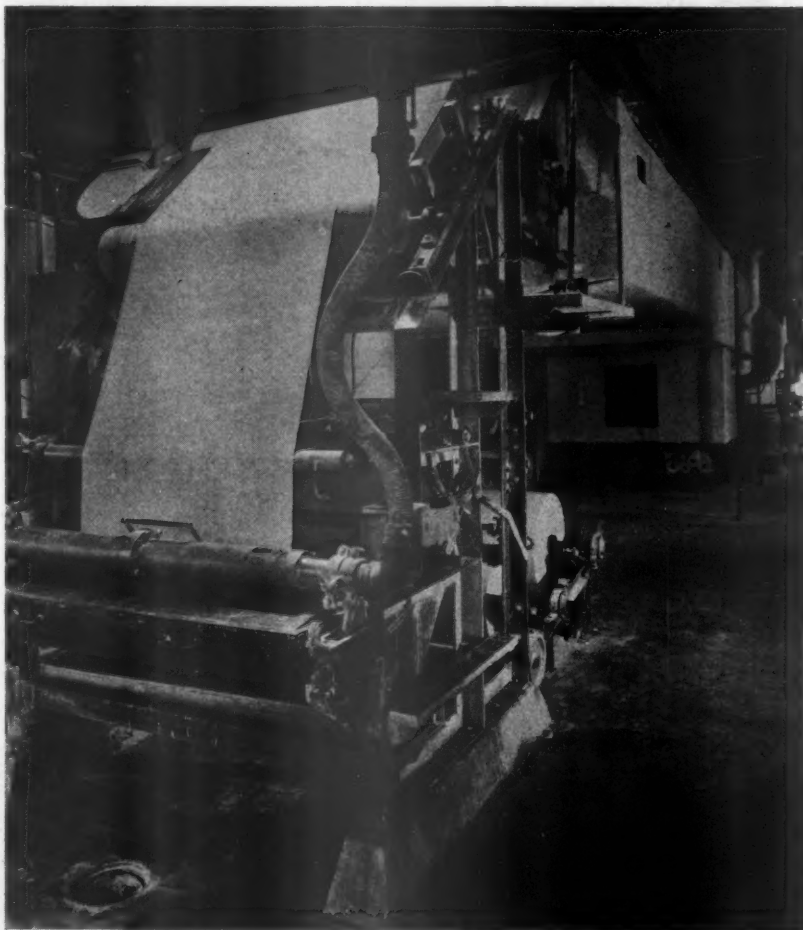
The development of the Merrill coating machine came about a few years ago when C. J. Merrill, a Portland, Maine, heating engineer saw possibilities of greater speed in coating operations if the customary festoon line could be eliminated. Merrill developed a flat, high-temperature, high speed dryer.

Coincidentally, the S. D. Warren Company, Portland, Maine, was developing an airbrush to overcome another obstacle to high speed coating—vibrating brushes.

With the combination of the flat, high-temperature, high speed dryer and the air brush greatly increased speed is possible with no sacrifice in quality.

Union Machine Co. Backstand

● A backstand, manufactured by the Union Machine Company, Fitchburg, Mass., holds the unwinding roll of raw stock as well as the new roll to be started, and is so constructed that the splice connecting the two can be made without stopping—called a "flying splice" or "paster."



WET END OF THE C. J. MERRILL COATING MACHINE at the Schmidt Lithograph Company, San Francisco. In the foreground is the **S. D. WARREN COMPANY AIR BRUSH**. Also shown in the photograph is the **UNION MACHINE COMPANY BACKSTAND**, manufactured at Fitchburg, Mass.

Passing over an idler and a driven roll, the sheet then goes over a color roll, consisting of a metal roll revolving at a comparatively slow speed, in a pan containing the coating mixture to be applied. This roll carries an excess of color which the sheet wipes off. The sheet is then led around the brush roll, where the S. D. Warren Company air brush blows off the excess color and spreads the remainder into an even film. There is also a Reeves drive on this end.

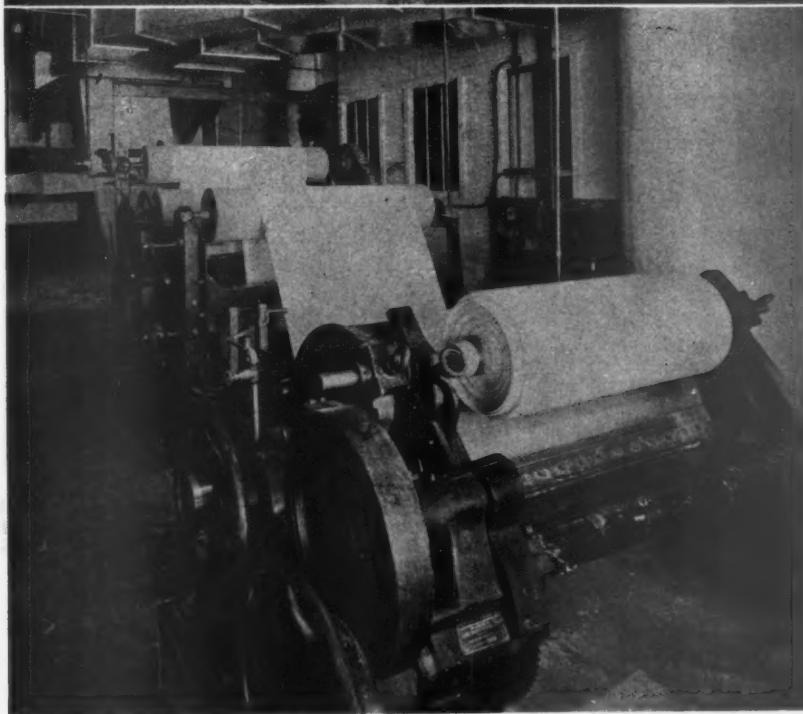
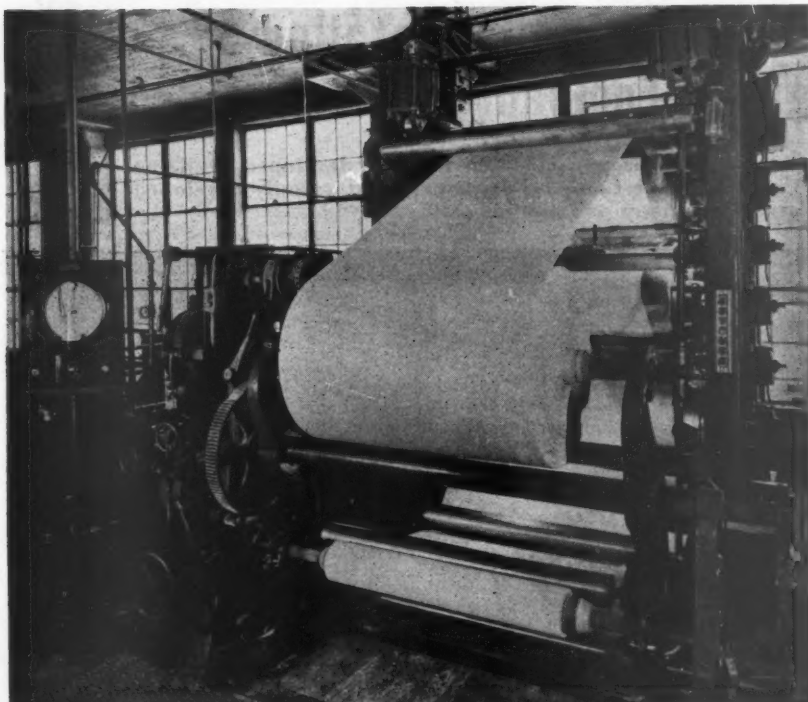
The weight of coat is determined by the pressure of air in the air

brush, which in turn governs the air velocity at the nozzle.

The sheet then travels up over the suction apron—a perforated endless rubber belt carrying the sheet by vacuum induced by a fan. The apron provides the principal drive of the sheet through the coater.

Leaving the apron the sheet is fed into the dryer and is carried through by a conveyor made up of sticks set approximately one foot apart on a pair of endless chains. The dryer shell is approximately 150 feet long.

The dryer is divided into three



(Upper view) THE NORWOOD ENGINEERING COMPANY calendar at the Schmidt Lithograph Company, San Francisco. This calendar is equipped with a FOXBORO PNEUMATIC LOADING INDICATOR, shown on the left side of the machine.

(Lower view) DRY END OF THE C. J. MERRILL COATING MACHINE at the Schmidt plant. In the foreground is the POPE REEL, manufactured by RICE BARTON CORP.

sections for heating, each provided with a fan, a set of fin-type heaters, and a by-pass. All sections have two heaters with space for a third. Each of the heaters is separately connect-

ed to both exhaust and high pressure steam and each is separately trapped.

Almost complete recirculation of the heating air is possible, owing to

the high temperature, which varies from 200 degrees F. to 300 degrees F., depending on the pressure of steam used. The air is sucked out of the dryer below the traveling sheet and delivered downward on top of the sheet through a system of internal ducts. Since the temperature of the drying sheet cannot exceed the wet-bulb temperature of the air, drying temperatures of 300 degrees F. and higher are both safe and practicable.

The entire shell of the dryer is supported high enough so that there is plenty of clearance below. Direct-connected motors drive the four fans in the dryer, and these are controlled by push buttons on the control panel at the dry end. The entire shell and heater units are insulated with a two inch spun rock wool blanket, covered with two plaster coats and heavy duck. There is no particular necessity for a positive feed of fresh air for this type of dryer as the conveyor sticks, as they emerge from the shell at either end, provide enough spill for the purpose. However, there is a stack ventilator at each end of the shell which tends to produce a slight negative pressure inside.

It is said that these are not necessary in all cases, however, and usually are installed for the operators' comfort rather than for any effect they may have on the drying operation.

Since drying is slack on a coating dryer, a hold-back is used immediately following the dryer to obtain a tight sheet. This hold-back consists of a driven drum, around which the sheet travels, being held against the drum by means of tapes. Between the dryer and hold-back the sheet hangs in a controlled loop. Owing to the fact that there is no definite tie-in between the section drives, either electrically or mechanically, it would be almost impossible to keep this loop at a constant position, since it would either drop to the floor or rise to the position of a tight sheet. This condition is avoided by the installation of a small rider, resting on top of the loop which actuates, by means of compressed air, a rheostat which in turn governs the speed of the hold-back and reel to keep the loop at practically a constant height. Photo electric cells have been used for the same purpose.

The coating machine has five gear motors supplied by Reliance Electric & Engineering Co. of Cleveland.

In line, next to the hold-back is a Pope reel, built by Rice, Barton

Corporation, Worcester, Massachusetts, which is slightly modified in design as required for handling coated paper.

Each of the five sections of the machine, coater rolls, apron, dryer conveyor, hold-back, and reel, is driven by a direct-current gear motor through a chain drive. Each motor has its own rheostat for adjusting the draw of the sheet between sections. However, the different drives do not need to be tied in as in the case of a paper machine drive as the sheet is not as tender and furthermore, there is more opportunity for slip. In fact, slip is quite necessary in the dryer section, for if the sheet while being dried, was not allowed to change its position over the conveyor sticks, so-called "stick marks" would be apt to develop.

The d.c. motor driving the hold-back is actually a generator (feeding back into the line) as soon as the sheet reaches the reel, as then the holdback is a brake being pulled by the sheet.

The rheostats connected with the motors driving the reel and hold-back adjust the winding tension.

Control at Dry End

● The prime mover for the entire lay-out is a motor generator set and the machine speed is governed by voltage control at the generator. The main panel holding the rheostat for this speed control is set at the dry end close to the reel. This panel also carries the ammeter and voltmeter for the generator, the ammeters for the sectional motors, the rheostat for motors on the hold-back and reel, and the push buttons operating the four fans. Also fixed to the same pillar that supports this panel is a two-way telephone connected with the wet end.

It will be seen, therefore, that the main control of the machine is in the hands of the operators at the dry end, although there is an emergency stop button at the wet end as well.

Since the amount of air required for the air brush is large, considering the pressure at which it is used, an Ingersoll-Rand type G motor-blower is installed. This machine is located just to the rear of the wet end and operates between four and five pounds per square inch per gauge pressure.

It is desirable with coated paper, as with most other papers, to be able to control the moisture content. While this is difficult with a festoon dryer, it is comparatively easy with a flat dryer of controlled speed, pro-

vided an instrument is available to indicate the dryness of the sheet. The Weston Instrument Co. indicator has been found well suited to this purpose and while it does not necessarily indicate moisture directly, it does indicate a condition which can be duplicated for any given grade. The control rests with the speed of the machine. For example, should the indicator show that the sheet is too dry, the machine is speeded up until the desired condition is indicated.

The overall length of the machine is approximately 200 feet and is designed to coat a web 53 inches wide at speeds from 150 to 700 feet per minute. The maximum speed depends upon a number of variables, but similar machines have produced as much as 21 tons of paper coated on one side in 24 hours.

Advantages of Dryer

● One of the chief advantages of the air-brush-flat dryer is that it can be operated at much higher speeds than other dryers. Regular brush coaters have a limited speed owing to the vibrating brushes, while the speed of the air brush appears to be limited only by the mechanical handling of the sheet.

The flat dryer is faster because there are no loose sticks as with festoon dryers, because the dryer is in-

closed and the drying air is directed at high velocity over the entire surface of the sheet, and because much higher drying temperatures are possible.

The air brush produces a very even film of color and it is extremely easy to vary the weight of coat simply by operating a valve in the air line.

The flat dryer produces a more evenly dried sheet than festoons and it is possible to control the drying within very close limits. The efficiency of the flat dryer, so far as steam consumption is concerned is also much improved over the festoon lines. This is partly due to the opportunity to use almost 100% recirculation of the air, particularly at the higher temperatures and partly due to the simple fact that the dryer is inclosed and completely insulated.

To calendar the coated paper, the Schmidt Lithograph Company uses a calendar manufactured by the Norwood Engineering Company, Florence, Massachusetts. This calendar has just been equipped with a Foxboro pneumatic loading indicator.

Court Upholds Ceiling Price On State-Owned Timber

● Thurston County Superior Court Judge John M. Wilson in Olympia, Wash., has ruled that the state land commission could not sell state timber for prices exceeding ceilings set by the office of price administration.

Judge Wilson's decision was handed down in a controversy growing out of the state's proposed sale of a block of state timber to the Soundview Pulp Company of Everett, Wash., for a price approximately \$8,000,000 above OPA ceiling.

Coos Bay Pulp Corporation of Ana-cortes, Wash., whose bid on the same block of timber was exactly the ceiling price, brought the action, seeking clarification of price ceilings as they affect sale of state timber and a writ of mandate directing Land Commissioner Jack Taylor to confirm sale of the timber to that corporation.

Judge Wilson promised in his decision that a writ of mandate would be issued and ruled "the state is bound and limited in sale of the timber involved by the federal (emergency price control) act and regulations thereunder."

The judge disagreed with land commission contentions that the price control act does not apply to states and that timber is not a commodity within the meaning of the act.

"This (price control act) is a war measure and the regulations under it are reasonably intended to enable the government to protect and defend the nation. Timber is one of the chief products used and usable in carrying on the war effort," Judge Wilson held.

R. A. Moen, assistant attorney general who defended the land commission in the action, announced an appeal would be taken to the state supreme court.



2ND LIEUTENANT LEE MASTERS BOREN, who was formerly employed in the sample department of Pioneer Division, The Flintkote Company, Los Angeles, paperboard manufacturers, was listed as missing in action early in the war. The War Department listed Second Lieutenant Masters Boren among twenty-one Army officers and twelve enlisted men lost in the sinking of the Navy's aircraft tender Langley in the Southwestern Pacific. He graduated and won his commission at Kelley Field on August 15, 1941.

How the New University of Washington Research Program Will Be Conducted

THE complete proposed plan for the industry-sponsored University of Washington research project on the utilization and disposal of pulp and paper mill effluent calls for three distinct fields of work.

The plan, now published in toto for the first time on this page, calls for:

1. Basic research dealing with wood chemistry and lignin.
2. Utilization of pulp and paper mill effluent.
3. Disposal of pulp and paper mill effluent.

How this work is divided up among University authorities and their departments is shown in an accompanying chart.

The agreement to create a \$300,000 to \$500,000 five-year research foundation for this purpose at the University, supported by the state industry, was announced New Years day.

In a message to PACIFIC PULP & PAPER INDUSTRY, published in our January issue, Governor Arthur B. Langlie praised the ambitious and liberally endowed program as holding "great promise for the economic future of our state." He predicted it might create "a vast new and important industry" in finding possible economic uses for the lignin, sugar and sulphur in mill effluent.

Following is the proposed plan:

Proposed Plan for the Organization of the Research Project on Utilization and Disposal of Pulp and Paper Mill Effluent

FOREWORD

The Research Project has resulted from a number of conferences of representatives of the State Government, the Pulp and Paper Industry, and the University. These Conferences dealt with the problems of the more complete utilization of forest growth and of stream improvement.

For the study of these problems it was suggested that a staff of scientists should be assembled and a program of research formulated and carried forward for a period of at least five years. The attention of industry was called to the world-wide nature of these problems and to the difficulty that has attended much of this work and that no guarantee of successful solution of the problems can be given. Nevertheless, the Research Project is intended as a persevering effort to apply cumulative knowledge in the greater conservation of our forest growth. It was believed that such a Project could be carried on advantageously at the University with its characteristic freedom and initiative in research.

OBJECTIVE OF THE PROJECT

The Project concerns itself primarily with the effluent or waste liquor of the pulp mills. The latter carries about 50 per cent of the wood pulped, in solution, together with inorganic chemicals used in the process. If this 50 per cent of wood substance can be utilized commercially, it is obvious that an important element in conservation of forest resources will have been accomplished. If, furthermore, untreated pulp mill wastes are no longer discharged into streams and waterways, it is equally obvious that stream improvement will have been accomplished. The Project, therefore deals with the Utilization and Disposal of Pulp and Paper Wastes, and with the chemistry of wood and lignin.

FIELDS OF WORK

- I Basic research dealing with Wood Chemistry and Lignin: The main organic constituents of pulp mill waste liquor are derived from lignin. Whatever knowledge may be ob-



LEO S. BURDON, General Manager, Soundview Pulp Company, Everett, who heads Washington state pulp and paper industry's executive committee sponsoring the University of Washington Research program. Other committee members are F. H. Youngman, Vice President, Crown Zellerbach Corp.; R. B. Wolf, Manager, Pulp Division Weyerhaeuser Timber Company; W. S. Lucey, General Manager, Rayonier Incorporated, and Lawson Turcotte, Executive Vice President, Puget Sound Pulp & Timber Company.

tained regarding their chemical nature, structure, reactions, and derivatives will constitute a basis for their use and disposition in industry and commerce. This work is an expansion of the lignin investigation now conducted by Dr. Bailey and will be continued under his direction and will be governed by the same conditions as now prevail.

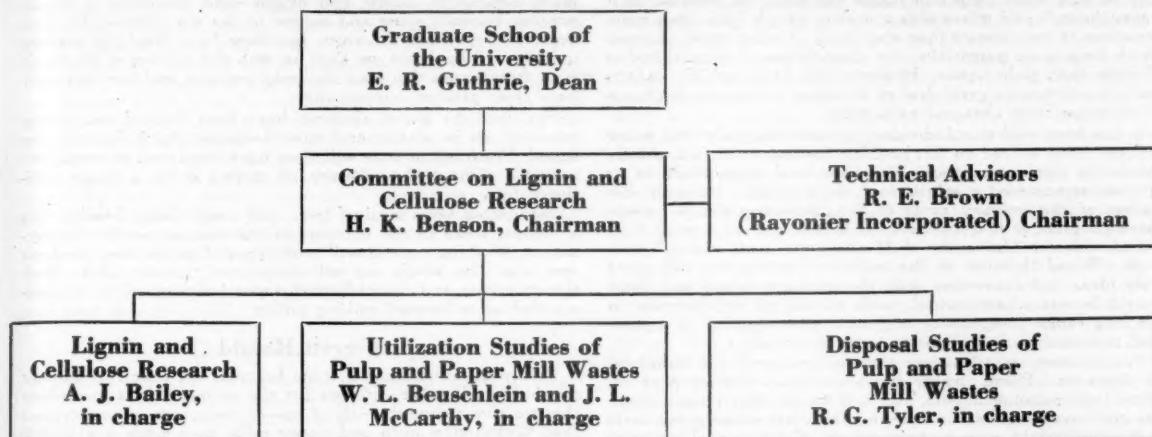
II Utilization of Pulp and Paper Mill Wastes: A chemical engineering study of sulfite waste liquor will be made to determine the use to which it may be put in industry and trade. This study deals with the components of waste liquor, their separation, in whole or in part, or their alteration to facilitate removal, reuse or new uses. It involves an investigation of what has been done as revealed in reports, patents, and the literature. It contemplates the consideration of other chemical base systems than calcium and the conditions under which the waste liquor of the sulfite pulping may be processed by evaporation for recovery or reuse of its components. It will include an investigation of the carbohydrates in the waste liquor and the use of bacteria, yeasts, molds, and other fungi for products of possible commercial values.

III Disposal of Pulp and Paper Mill Wastes: A sanitary engineering study will be undertaken. It will regard waste liquor as a sewage disposal problem and it will investigate oxidation and reduction methods of nullifying its biochemical oxygen demand with post treatment sewer discharge as before. Methods of disposal analogous to those used for other trade wastes will be investigated. The pretreatment of waste liquor, or intermediate treatment or in steps in sewage filters will be investigated. The pretreatment of waste liquor, or intermediate treatment or in steps in sewage filters will receive attention. Physical methods for the removal and separation of constituents after chemical or biological treatment will be considered. Pilot plants or experimental set-ups will be constructed and operated as part of this investigation.

ORGANIZATION OF STAFF

The Project is administered by the Committee on Lignin and Cellulose Research in the graduate School, Dr. E. R. Guthrie, Dean. The membership of the Committee in addition to Dean Guthrie, consists of Professors B. L. Grondal, E. J. Ordal, G. B. Rigg, H. V. Tartar, and H. K. Benson, Chairman. Each field of work is in charge of a group leader who, subject to the approval of the Committee, selects the required personnel, issues requisitions for equipment and supplies, recom-

UNIVERSITY OF WASHINGTON RESEARCH ORGANIZATION



mends salaries to be paid to staff members, and reports the progress of the work in his field to the Committee at designated periods of time.

FINANCIAL REQUIREMENTS

A minimum sum of \$60,000 per annum is required over a five-year period. It will be paid to the Comptroller of the University and will be known as the Pulp Mill Wastes' Research Fund. Allocations from this fund will be made by the Committee to the respective groups and given a letter or number for convenience in accounting.

REPORTS, PATENTS AND PUBLICATIONS

Progress or interim reports shall be made by the University Committee to the Mills Committee of the contributing mills semi-annually and at such other times when requested by said Mills Committee. Staff members will report to the Group Leader and the latter to the University Committee. Papers in the field of Utilization and Disposal shall be submitted to the Mills Committee of the contributing mills for review by the technical advisors of said mills. Final decisions on publication shall be made by the University Committee.

Patents will become the property of the Foundation for Research at the University of Washington, with shop rights granted to all contributing mills.

State Newspapers Commend Mills For U. of W. Research Foundation

● The press of Washington State has generally given its whole-hearted approval of the industry-sponsored research program at the University of Washington to find ways to use or dispose of pulp and paper mill effluent.

Newspapers of the state commend the participating pulp and paper companies, which are underwriting the program to the extent of at least \$300,000 for five years and possibly half a million dollars, if found necessary.

The Bellingham Herald praised "the progressive foresight" of the mills. The Longview News said it "opens up alluring prospects for industrial development." The Shelton Mason County Journal speaks of "many things that will work wonders for future generations."

The Grays Harbor Washingtonian of Hoquiam called the action "a forward looking policy." The Everett Herald said it was "a major step toward maximum conservation." The Port Townsend leader says "the state should materially benefit" and the Daily Olympian in Olympia praised "the progressive, far-sighted managements of the state's mills." It even suggested it might bring "draft hemlock" and "bottled spruce" as new types of beer.

Here follow some of the editorials:

Shelton Mason County Journal

● For many years there has been a great waste of valuable elements of timber going on at the pulp mills, not to speak of the nuisance for lack of means of disposal and there is now some hope for utilization spurred on in part by the war emergency and with the prospect of renewed attention and some federal aid.

The Puget Sound Pulp & Timber Company proposed several years ago to initiate with some support the Swedish process of extracting alcohol from waste sulphite liquor, which it is claimed could be produced for 18 or 20 cents a gallon, while present cost to the government is around eighty cents; used in part for producing Buna rubber tires.

The government is financing huge plants for producing alcohol from sorely needed petroleum, sadly needed corn for foods, and on various plant experiments as well as huge outlays

in South America, all in the nature of experiments which fall far short of supplying the needs of this country before the war is likely to end.

Recently the several large pulp concerns have promised to support a department at the State University devoted to finding all the possible uses for sulphite waste liquor and its fibers from which only the cellulose has been extracted, leaving sugars, foods, plastics as well as alcohol waiting for chemists to find use for.

This is only a hint in one direction of the many things that will work wonders for future industry when war ends and the minds of men can be turned from works of war to those of peace; the wonders that will bring comfort along with the peace to the troubled world; providing unseen hands plotting for selfish ends do not wreck the prospects for new industry.

Longview Daily News

It need not be questioned that this dual purpose research is rich in its promise of general benefits. Its progress will be watched and its accomplishments awaited with great interest in the Pacific Northwest. Not only does it offer the possibility that the forest industry will yield itself to new products, new wealth and more jobs but it may provide the answer to that old problem of how best to dispose of the liquor waste that now goes into streams, making them injurious to fish and other life. Furthermore the studies are an example of how industry can collaborate with educational or government enterprise in working for the common good. These studies also are evidence of industry's willingness to collaborate and do it with dollars.

The problem of disposal of waste liquor from the acid chemical pulping process has engaged the attention of industry for many years and in recent years has had the study of the Washington State Planning Commission. When this waste liquor cannot be burned or otherwise utilized it has been necessary to discharge it into the nearest stream or body of water. Discharge of this liquor, like any industrial or domestic waste, detracts from the natural and aesthetic qualities of the body of water. Sportsmen, fishermen and others have become increasingly concerned over the effect of dumping mill wastes. Many investigations have been made to show these wastes are inimical

to fish and other life but always with inconclusive results. Probably because waste pulp mill liquor can easily be detected as it leaves the mill and mixes with a stream, people have been more conscious of its presence than they have of other types of waste which have more potentiality for degradation of natural bodies of water than pulp liquor. However, this fact, and it is a fact, has not prevented a great deal of agitation to stop the discharge of all wastes from chemical pulp mills.

It has been said that individual units of the pulp and paper industry have worked on this problem for years. In fact, shortly before the war one company had completed plans which in its opinion represented a solution of the problem. However, the leaders of the industry came to the conclusion that a coordinated program of investigation was needed and as a result have joined with the University of Washington in its research program. Wood chemists of the individual companies will share their ideas and experience with the graduate school and there should be immediate mutual profit as well as improvement in the long range prospects of real accomplishment. It is a practical partnership that ought to bring dividends.

Furthermore, it opens up alluring prospects for industrial development. There already has been much discussion of alcohol from sulphite liquors, and it is known that syrups, vanillins and rayons are obtainable, and there are other possibilities in the textile field, even to development of commercial synthetic wools. When the pulp or paper technician begins talking of lignin, cellulose, and branches off into wood sugars, he soon bewilders the layman. Much of the spade work already has been done in the practical development, but this new program should also prepare and encourage young people to pursue studies and research which will equip them to enter this whole chemical and industrial field as it grows.

The Bellingham Herald

Washington's pulp and paper mills manifested progressive foresight when they sponsored a five-year research program at the University of Washington.

The plan calls for a joint contribution of a minimum of \$60,000 annually—up to \$100,000 if deemed advisable—over the five-year period, for delving into the problem of utilizing and neutralizing the liquid waste from pulp manufacturing plants.

The research will be carried on by the graduate school at the university in cooperation with the technical staffs of the pulp and paper industries.

When it is realized that 40 per cent of a log cut for pulp manufacture now is wasted, the importance of such research becomes obvious. Although chemistry has found uses for the lignin binder, scientists believe a new field of opportunity awaits developments. In the past most of the waste liquid, containing sulphur, sugar and other ingredients, has been dumped into Puget Sound, thereby creating problems which has been annoying and costly to the industry. Yet this waste possesses ingredients which may be utilized to advantage and profit in expanding postwar industrial employment.

For several years experiments have been conducted to demonstrate the practicability of producing industrial alcohol from lignin waste, but support from the federal government has been so indifferent that the industry has been unable to make use of this promising outlet. Yet the desirability of using a cellulose waste instead of valuable grains for the manufacture of alcohol can hardly be challenged.

Money spent on research in the development of additional uses for the by-products of pulp manufacture in the Pacific Northwest should be returned many fold.

Grays Harbor Washingtonian

The phrase "postwar planning" is on all tongues these days, as many wonder what is in store for the state of Washington when once the bells of peace ring out. So it is encouraging to note the news release by the board of regents of the University of Washington which tells how 20 pulp and paper mills of Washington state will sponsor a waste products research program in the university for at least the next five years. More encouraging to note that the pulp and paper operators are willing to spend between \$300,000 and \$500,000 of their own money on the project.

The program has two purposes: To find a practical method for the neutralization and disposal of pulp and paper mill liquors and wastes, and to find a method or methods for the recovery and utilization of the lignin, sulphur and other materials now wasted in the manufacture of pulp and paper.

Pulp and paper have their genesis in the cellulose element of trees, which renew plentifully and quickly on Grays Harbor when fire is kept from the younger growth, and it is important to know that trees need only to attain a growth in excess of 40 years to be usable in the pulp and paper industry. Other ele-

PACIFIC PULP & PAPER INDUSTRY

ments in the tree which is finally worked up in a pulp mill are more difficult to isolate and utilize—and therefore a certain amount becomes waste and escape to the sea. Some uses have been developed for the waste, but these have filled the markets quickly and have not yet kept up with the volume of waste. It is in these wastes that both the pulp industry and the university have their greatest opportunity.

For once the useful elements have been isolated and put to practical use in plastics and other fields for which they are best suited, Washington state will then have developed a brand new industry without the necessity of cutting down a single additional tree.

Because we are a land of trees and water Grays Harbor has a definite stake in the outcome of the research at the University of Washington and will look forward to the new products and new jobs which can well drop from the test tubes. Both the university and the pulp and paper industry are to be commended on a forward-looking policy.

Everett Herald

Before the international scene becomes the center of interest precluding all other interests for the moment, it is incumbent that we give a thought—all of us—to the recent announcement that Washington pulp and paper mills have made a \$300,000 to \$500,000 contribution to the University of Washington for research. To us it is a clear demonstration that the pulp and paper industry has taken a major step toward maximum conservation. And that, after all, is what we had been seeking as we watched the phenomenal growth of this industry in the State of Washington.

As we already have stated, studies will be set up at the university, under this five-year grant, to find a solution for the pollution problem and to find some useful industrial purpose for the hundreds of tons of pulp liquid that now go to waste in the manufacture of wood pulp. We are informed that preliminary studies have shown that this mill waste contains immense quantities of lignin, sugar, sulphur and other ingredients. If these can be extracted and turned into commercial channels, it will result in many new Northwest industrial enterprises. The pulp and paper industry holds faith to this end. Their interest, backed up by their financial contribution, sets a precedent in the industrial history of the state of Washington. It should give us added confidence in our future.

The contribution turns our thoughts to the lumber industry in this state which already has gone far in its efforts to protect this vast heritage of ours by a scientific and continuous program of reforestation. As competitive materials have appeared in the world markets, the lumbermen have met them by developing the pulps, and the plywoods, and a dozen other new and modern uses for timber. The ability of scientists in the lumber industry to develop new materials to meet changing demands has enabled lumber to hold its own. Again we use the now very trite saying of a changing world. Yet we know that it is changing if by no other method of attaining this knowledge than the progressive steps of industry and such as that taken by the pulp and paper mills of our own state.

We are pleased to note the participation in this very worthwhile research program of the pulp and paper mills of our own community. It denotes progressive leadership of a type no community can survive without. Our heritage was the virgin forest. To be true, the early days found the commercializing of this heritage along lines that would not be permitted today. Perhaps we were tearing down to build but the tearing down process continued beyond all reason. It is gratifying to know that the realization is general that the waste that comes with programs of exploitation must give way to the maximum conservation of which we have spoken earlier in this discussion.

It is indeed, a good omen for the future when the modern heads of this great industry of ours begin to recognize a need for a new conservation—a conservation of waste. Especially is it a good omen when they back their recognition of that need to the extent of \$500,000 for research.

Port Townsend Leader

There are wholesome signs on the horizons for communities where pulp and paper mills operate, and this particularly interests the Olympic Peninsula which has a fair share of the big mills. Port Townsend heard Saturday night about the active post-war planning by Crown Zellerbach Corporation into fields of research, new manufacturing methods, new sales outlets and timber growth, protection and uses. Port Townsend is proud to be the home grounds for the new hydraulic log barker just installed at the big kraft mill here. For this barker will operate definitely in the public interest by permitting a much fuller utilization of timber from the Olympic forests than has been possible previously.

In addition to these important activities, the state should ma-

terially benefit from expected results of the scientific studies now being made by the lignin and cellulose research of the University of Washington. Twenty pulp and paper mills of Washington state are contributing between \$300,000 and \$500,000 so that the research will be adequately financed.

While Port Townsend kraft mill does not have the disposal problem of sulphite mills, nevertheless it is going along and paying its share in the hope much good will result from the whole research program.

There are said to be many values in sulphite waste which have found practical uses, but as yet there has been no practical use found for the greater amounts of the wastes and it is to this challenge the University is applying its genius and the industry its finances. Their findings may evolve new uses in the field of plastics and by-products. And it is encouraging to realize that when this day arrives, the result will be accomplished without cutting any additional timber than that which now goes into the mills.

The Daily Olympian

● Two recent developments ought to have an important bearing on the economic future of Western Washington. The progressive, far-sighted managements of the state's pulp and paper mills have sponsored a five-year research program to be conducted at the University of Washington and the War Production Board has approved plans for the manufacture of alcohol from waste sulphite liquor in a privately-owned plant at Bellingham.

The pulp and paper mills will contribute as much as \$100,000 a year, if necessary, over a five-year period for the purpose of studying the problem of utilizing sulphite liquor and neutralizing whatever liquids are allowed to flow into streams and harbors.

At present only 60 per cent of every tree cut for manufacture into pulp is used profitably. The remainder, although it con-

tains sugar and heat values, is dumped into Puget Sound or some other body of water, creating conditions which are embarrassing and costly to the industry. Chemists already have examined this waste material enough to know that many useful articles can be made from it. If experiments carried on at the Seattle school lead to practical methods of converting refuse into items for which there will be a public demand, a tree which today serves only one purpose will provide raw materials for two or three other industries, and consequently increase opportunities for employment.

The Federal government has been paying as high as 90 cents a gallon for alcohol made from grains, which are needed for food. The Administration has been reluctant to offer resistance in developing plants for the manufacture of alcohol from sulphite liquors despite the fact that it has been demonstrated to congressional committees that alcohol can be extracted from pulp mill waste at low cost. One of the best known authorities in the world is Dr. M. M. Rosten, a consulting chemical engineer. He owned and operated the Kutno chemical works in Poland, which was producing 14,500 gallons of alcohol daily in 1938. Dr. Rosten told a congressional committee that in an average size plant alcohol can be made from waste liquids for 12.40 cents a gallon, exclusive of overhead and amortization. The company in Bellingham proposes to manufacture alcohol for 20 cents a gallon. If the venture is a success, and there seems to be no reason why it will not be, other plants probably will be established in the Puget Sound area.

Scientists envision infinite possibilities in trees. Their outlook is comforting to residents of Western Washington, where timber now is regarded as a crop. It may be only a question of time until hemlock, which was not tolerated in good company a few years ago, not only will shelter us but also provide us with food and schnazzy suits.

Incidentally, the Swedes manufacture a very tasty beer out of sulphite liquor. The day may come when draft hemlock and bottled spruce will be distinguished Washington products.

WPB Pulpwood Set-up on Coast Reorganized; Champeaux Succeeds Hayes in Seattle Office

● In line with closer coordination of the lumber and paper divisions of the War Production Board in Washington, D. C., under the recently formed forest products bureau, a coordination of the field activities in respect to log supply has been put into effect on the Pacific Coast.

Fred H. Brundage, Western log and lumber administrator, Bedell Bldg., Portland, Ore., has become more closely tied with supply of logs for pulp and paper on the coast and is coordinating field activities for all logs.

Henry G. Champeaux has become regional representative of the Paper Division on the Pacific Coast as far as pulpwood supply is concerned, succeeding E. J. "Opie" Hayes, who had held that position for more than a year.

Mr. Hayes is resuming his connection with the St. Regis Paper Company, Kraft Pulp Division, Tacoma, Wash. The kraft pulp mill at Tacoma, closed down since November 1, 1942, as a result of a WPB order arising out of the log shortage, has recently acquired a perpetual timber supply in Southwest Washington and is expected to resume operations in about two months.

Mr. Champeaux, with offices in Bedell Building, Portland, and in the Henry Building, Seattle, will operate under Mr. Brundage. He took over February 1 and after consultations with Mr. Brundage in Portland, went east for a couple of weeks to meet with James L. Madden, deputy director of the paper division, in charge of pulpwood production.

Mr. Champeaux has spent the past two years in Washington as chief of the stumpage and log section of the lumber branch of the Office of Price Administration. He framed price regulations for logs for the entire country.

Prior to the war he was log sales man-



E. J. HAYES (left), who resigned as Pacific Coast representative of the Paper Division, WPB, to rejoin St. Regis Paper Company in Tacoma. His successor as western representative of the Paper Division is HENRY G. CHAMPEAUX (right), who will have offices in both Seattle and Portland, working under FRED H. BRUNDAGE, Western Log and Lumber Administrator.

ager of the Carlisle Lumber Company at Unalaska, Wash. For a number of years he had been with the Miller Logging Company of Seattle and before that, with Webb Logging & Timber Company, Seattle, and Buffelen Lumber and Manufacturing Company, Tacoma.

Born in Cloquet, Minn., he is 47 years old, is married and has a 13-year-old daughter and a 22-year-old son, George, who is in army aviation school in Mississippi. The Champeauxs have lived in Seattle for many years.

At the time these changes were made in the Pacific Coast set-up, there were rumors current in the industry of possible increases in log prices as well as pulp prices and an OPA official from Washington was in Portland on this mat-

ter. Members of the industry were reported to have asked for a \$12 a ton nationwide pulp price boost but the OPA was said to be considering raises of \$4 to \$10 for different grades.

The problems of the coordinated WPB West Coast officials will be those of production and supply of the pulp and paper industry, and maintenance of an adequate supply of logs, with the overall objective of holding pulp production at its present levels. It is interesting in this connection to note Mr. Brundage's remarks at the recent Logging Congress that more pulp will be needed in 1944 despite tight log prospects.

The reorganization is expected to provide better coordination over the whole wood industry, as between logs for pulp and paper, and those for lumber and other forest products industries.

Libby Office Manager

Fred N. Libby has been appointed office manager of the accounting department, San Francisco headquarters, Crown-Zellerbach Corporation. Mr. Libby, who has been with the corporation 12 years, takes the place of the late Stanley Nightingale, who died Dec. 17.

Credit Union Officers

● The annual meeting of the Puget Pulp Credit Union of Bellingham was held in the Leopold hotel on January 17. The Credit Union is now a holder of War Bonds to the limit of its by-laws.

The following officers will serve for 1944: President, Glen "Bud" McDonald; vice president, Sidney M. Collier; secretary-treasurer, Tom D. Hutchison, and directors: Stanley Lewis, Mr. Collier, Mr. Hutchison, J. Ladd Smith, Pete Anderson, Isaac McDougale, Mr. McDonald, Gerald Green and Thornton Behme.

Pacific Logging Congress Becomes Interested in Pulp and Paper

Closer integration of the logging industry and industries making various end products of wood is predicted . . . Ladysmith, B. C., experiment discussed in all phases . . . E. G. Griggs II asks for joint committee to work out problems of costs in logging small and broken wood . . . Urges development of new machines . . . Brundage says government needs more pulp.

THE western logging industry has "discovered" the pulp and paper industry.

Underlying and persistently repeated theme of the 34th annual sessions of the Pacific Logging Congress, held in the Olympic hotel, Seattle, January 19 and 20, was that loggers should learn more about the end uses of wood and more closely integrate their activities with those of pulp and paper makers and other users of wood, besides the sawmills.

The big tree western loggers' traditional scorn for the small wood left on logged off lands and the hitherto unused species of wood must be overcome, said several speakers. The logger should no longer look upon a tree as so many board feet but should consider its content—what can be gotten out of it besides lumber.

There may have been some in the audience who recalled that 15 years ago J. H. Bloedel, president of the Bloedel-Donovan Lumber Mills, predicted that Pacific Coast loggers and lumbermen would become pulp and paper men by 1950. Mr. Bloedel was seen at the hotel and, if he had heard the way the loggers were talking, he might have had cause to smile.

Practically one-fourth of the entire program—the second afternoon of the session—was turned over almost exclusively to the subject of closer utilization of our wood resources.

The president of the Congress, Roy F. Morse, of Long-Bell Lumber Company, Longview, Wash., described increased use of timber stands as an important development of the times. (Incidentally, Don McKenzie, manager of the lumber division of Anaconda Copper Company, Bonner, Mont., was elected the new president of the Congress).

Fred H. Brundage, the War Production Board's western log and lumber administrator, giving the "final word" of the convention, urged a closer cooperative effort in the woods industry and said the government, the army and the navy will need more pulpwood in 1944.

A panel discussion of the Comox Logging & Railway Co.-Powell River Co. cooperative experiment in recovering and using small logs left on logged-off lands at Ladysmith, B. C., which has been described in articles in recent issues of this magazine, was given. (More about this later).

Dr. A. J. Hall, Biochemist, U. S. Forest Service, Washington, D. C., discussed the chemical possibilities of wood and new plastic and molded products being developed with poor grades and little used species of wood at the Madison, Wis., Forest Products Laboratory.

Ed. Heacox, of the Weyerhaeuser Timber Company, Longview, Wash., discussed "Logging Culls by Weyerhaeuser" which is aimed at use of what was formerly waste wood for wood products but which is tied in with Weyerhaeuser Timber Company's overall conservation and utilization policies for its Pulp Division as well as its Lumber Division.

E. G. Griggs II, of the St. Paul & Tacoma Lumber Company, of Tacoma, Wash., urging pre-logging and re-logging (taking out small and uncommonly used woods before or after big timber), said "there is nothing better that we could start doing when the boys start coming back from the South Pacific and Europe and we have the manpower."

"The pulp people, the loggers and the scaling bureau should have a committee and figure a way of measuring this wood," he said, pointing that by ordinary board foot measure of logs, it would not pay the loggers to bring out such material. He praised a British Columbia proposal to measure such wood by cubic feet and price it accordingly.

Another suggestion by Mr. Griggs was "the machinery and equipment people get together with loggers and develop new kinds of equipment that will handle broken logs and small chunks after clear cutting."

Declaring that "taking care of wasted materials in the woods" is a greater problem in the Pacific Northwest and in the California Redwood country than anywhere

else on the continent and for that reason the government should provide the west coast with a forest products laboratory similar to the one in operation at Madison, Wis.

Mr. Griggs and R. J. Filberg, general manager of the Comox Logging & Railway Company, both said that pulp and paper mills should not set their standards too high and should be willing to take and use poorer quality of wood than some of them may expect in this recovery program.

The Ladysmith Experiment

● Speakers representing Powell River Company, Comox and the British Columbia government brought their listeners up to date on the progress of the Ladysmith project. Not only did they tell how wood left on the ground after primary logging by the Comox company was being harvested and transported to the pulp mill at Powell River, but they were given the reassuring information that, according to the preliminary evidence, the plan could not fail to be an economic success.

This conclusion was arrived at by Angus P. McBean, provincial government forester who has been keeping a close check and analysis of costs in connection with yarding and transportation of the logs from forest to pulp mill. The whole project is still regarded as experimental so far as specific procedure is concerned, but both Powell River and Comox are optimistic concerning future development on a large scale and extensive structural changes at Powell River's mill are contemplated in anticipation of a steady flow of small logs from the Ladysmith operation as soon as the preliminary technical problems have been settled.

Mr. MacBean's cost figures were based on Canadian dollars, roughly 10 per cent less than U. S., but as U. S. wages are correspondingly higher, the proportions are about the same. The fact that hemlock log prices are currently high—about \$17 a thousand in British Columbia



STRONGER LINKS OF UNDERSTANDING AND COOPERATION between the logging industry and the pulp and paper industry were forged by these gentlemen at the **PACIFIC LOGGING CONGRESS** on January 20 in Seattle:

1. The panel of experts who discussed the three-way project of Powell River Company, Comox Logging & Railway Company and the British Columbia government to recover small logs from logged-over lands and use them in pulp and paper production. Left to right: C. D. ORCHARD, Chief B. C. Forester, Victoria, B. C.; HARRY ANDREWS, Powell River Company's Control Superintendent; JAMES SHEASGREEN, Comox Logging Superintendent at Ladysmith, B. C.; ANGUS P. MacBEAN, Assistant B. C. Forester, Victoria, B. C., and GEORGE O'BRIEN, representing Powell River Company logging department.

2. DR. J. A. HALL, Biochemist, U. S. Forest Service, Washington, D. C., who discussed chemical and other new uses of wood.

3. MR. ANDREWS, making his talk on the subject of increased use of timber stands from the manufacturer's point of view. (This paper is published on the following pages.)

4. E. G. GRIGGS II, St. Paul & Tacoma Lumber Company, who urged cooperation among loggers, pulp and paper executives and the scaling bureau to determine how pre-logging and re-logging might be done in order to bring out small wood and broken wood. He also urged manufacturers of machinery to assist in devising equipment for this purpose.

5. ED HEACOX, Weyerhaeuser Timber Company, Longview, Wash., who discussed the logging of culls and utilizing of wood now left on the land.

—was primarily responsible for the log utilization experiment at this time, but Mr. MacBean is convinced in his own mind that even if log prices decline the utilization of small logs for pulp will still be justified as the wage curve usually follows the fluctuation in log values.

At the Congress discussions the speakers were introduced by C. D. Orchard, chief forester for British

Columbia, who described the genesis of the Ladysmith program.

Harry Andrews, control superintendent of Powell River Company, outlined some of the problems encountered in converting the logs into commercial pulp. Mr. Filberg and James Sheasgreen, Comox superintendent at Ladysmith, told about the logging phases of the experiment. George O'Brien, temporarily

with Powell River Company, took the place of Archie Deland, logging manager of that company, on the program and introduced Mr. Andrews. W. B. Osborne of the U. S. Forest Service, Portland, Ore., spoke of the beneficial effects of the small-log utilization program from the standpoint of reducing fire hazard.

Mr. Sheasgreen said that they have started to collect the small logs

in trucks and have dumped the first wrapped bundles in Georgia Strait. Wires hold the bundles together and a large number of bundles will be towed in a single boom to the Powell River mill. This method of towing, one of the big economic problems, will be carried out this way, he indicated, until some better scheme is offered.

Mr. Sheasgreen's talk followed pretty much the line of information that has been published in **PACIFIC PULP & PAPER INDUSTRY's** progressive reports on the experiments in almost every issue beginning with the July, 1943, issue.

The papers by Mr. Andrews and Mr. MacBean follow this article.

Among others well known in the pulp and paper industry at the sessions:

Herman Simpson, on special assignment with Western Gear Works and a former Northwest mill manager; Carl Sahlin, logging manager, and Clair Harvey, logging engineer, of the Puget Sound Pulp & Timber Company, and Ed Stamm, logging



AT THE RECENT LOGGING CONGRESS in Seattle:

CARL SAHLIN (on the right), Logging Manager, Puget Sound Pulp & Timber Company, Bellingham, Wash., with A. M. BROOKS, Logging Superintendent in the Puget Sound area for Pope & Talbot, Inc. Speakers at the Congress discussed the recently WPB-approved project to build an alcohol plant in connection with the pulp mill at Bellingham, utilizing part of its waste liquor for that purpose.

manager from Portland, Axel F. Branstrom, chief forester, B. F. Ross, Charles Nichols, L. N. Rees, H. J. Goodrich and Robert Ross, all of Crown Zellerbach Corporation.

Two-Time Log Scale Proposed to Save Wood

● Plans are now being made for the adoption of a new cubic yard system of log scaling in British Columbia to be used in preference to or in combination with the conventional board foot measurement as a means of estimating the content of small logs left behind after the major logging operation has been completed.

Practical logging operators as well as foresters are hopeful that the Pacific Northwest states will adopt a similar policy as the ultimate aim is to conserve a vast amount of timber that is at present being wasted.

Need for a new and simpler means of scaling was emphasized in the recent experiment being carried out by Powell River Co. and Comox Logging & Railway Co. at Ladysmith, where small logs are being salvaged for conversion into pulp.

One of the best qualified men in the pulp and paper industry in British Columbia told **Pacific Pulp and Paper Industry** that in future it should be required that each timber area to be logged should be definitely logged twice. The first operation would remove all the larger timber; the second would take out everything salvageable such as small trees, butts, snags, etc. Ordinary board foot scale could be applied to logs taken in the first operation; the cubic standard would govern the small cut.

Increased Utilization of Timber-- The Manufacturers' Experience

By I. H. ANDREWS*

Control Superintendent, Powell River Co.

● Thus far, only a limited quantity of salvaged small wood from logged-over lands in British Columbia has been available to our mill—and consequently we are not yet in a position to present complete information or arrive at definite conclusions.

However, we expect, in the immediate future, that a continuous supply, sufficient to conduct semi-mill tests and allow us to determine how it can best be used and handled, will be available. Special equipment will presently be installed for the purpose. In the meantime we have devoted considerable thought and study to this subject and certain of our conclusions may be of interest.

As loggers you are well aware of the problem of logging waste from a logger's viewpoint. But it is also a mill or wood preparation problem, presenting, in addition, difficulties of transportation and storage. Therefore it is perhaps understandable why no effort has been made heretofore to utilize this source of supply.

Nevertheless, we realize, as you do, that much useable wood is left in the wake of logging operations—and that if this is to be cut, transported and manufactured commercially, it must be through the combined efforts of all of us, the logger, the transportation companies and the mill groups. If this co-operation can be achieved—and it must be achieved—we are satisfied an answer may be worked out.

The material remaining after normal logging operations consists largely of saplings of 6-4" butt diameter, some tops from merchantable logs, broken log pieces, and other debris. The species, of course, follow fairly closely that of the original stand. In the Vancouver and Prince Rupert Forest Districts, all our conifers, hemlock, balsam, spruce, Douglas fir, cedar and pine, are represented.

From the point of view of pulpwood operation, it is not feasible to lump all of logging waste into one common pot; knotty tree tops, limbs and other debris, which are in the minority, are difficult of utilization. On the other hand sap-

lings, which form a large part of logging waste, are more desirable material.

Concentrating on Saplings

● For the present, therefore, our experiments will concentrate on saplings, although we expect that some log tops and broken logs will be included. Utilization of debris can be tackled when the major problem of the more readily salvageable saplings is solved. This would seem to be a reasonable and sound procedure.

Proceeding on this basis, we will have to contend with small logs, ranging from 10 to 75 feet in length, with tip diameters 5 to 9 inches, and butts 8 to 14 inches.

Where species are concerned, it is obvious that if the logger is going to do an economical job, all species of saplings should be brought out at the same time. While, under some circumstances, it might be suitable to mix the species—i.e. where one species largely predominates and the pulp mill can use the mixture—in general, mixed species is detrimental in the production of a good product. Sorting for species at the mill is difficult and unsatisfactory. The logical locale is in the woods.

Sorting for quality will still have to be done at the mill. The main pulp processes, sulphite, sulphate, soda and groundwood, cannot take a poor grade of raw material for a good grade of products. Obviously the thing to do is to use the best material for the best product, and so on down the line, developing uses for the poorer and less suitable material.

The economics of our pulp mills are tied-up, to some extent, with the wood preparation costs, i.e. sawing, barking and chipping, and these operations are designed for normal pulp logs. It is apparent that the handling of small logs by our normal production methods would mean reduced capacities and higher costs, and that this kind of raw material should be handled in large volumes and with a minimum of hand labor. Furthermore, the plan should allow of wood selection. Predicated primarily on the manufacture of sulphite and

*Paper given at Pacific Logging Congress in Seattle, January 20, 1944. The mill utilizing this new source of pulpwood is at Powell River, B. C.

groundwood pulps, we believe this may be accomplished by something along the lines of the following:

- (1) Making bundles of about 8'x10'x50' in the trucks in the woods, separately as to species.
- (2) Transport and store the bundles in rafts.
- (3) Lift the bundle out of the water and break it down in the wood mill.
- (4) Trim to length, with respect to use requirements and quality.
- (5) Hydraulic barking.
- (6) Sort over 12" direct to chippers for sulphite, if suitable from quality standpoint, or else to slashers for groundwood or to cull; 12" diameter and under to slashers and then to the groundwood mill.
- (7) Develop use for cull material.

An alternate scheme might include:

- (1) All logs, or portions, 10-12" diameter and over with the normal pulp logs;
- (2) All small logs through slashers, thence to a short wood hydraulic barker or drum barkers for groundwood or other uses.

Mill Requirements

● It will be apparent, that in the utilization of logging waste different requirements, necessitating different treatment and a different approach, may be necessary. One company may plan emphasis on sulphite; another on sulphate, and still another on newsprint. All these will approach the question from whatever angle best suits their own production problems. Likewise

the installation of new machines such as the hydraulic log and short wood barkers, will preclude, for some time at least, any uniform method of approach.

It may be of some interest to review the usefulness of the various wood species along pulp lines.

Hemlock—suitable for all pulp processes.

Balsam fir—suitable for all pulp processes.

Spruce—suitable for all pulp purposes.

Douglas fir—suitable for sulphite pulp, but is used in sulphate process, although not as desirable as hemlock. Preliminary experiments indicate it may possibly be used for groundwood.

Cedar—may be used in the sulphate process and possibly in some processes used for board manufacture. Not as suitable as other species.

While unquestionably the sulphite and groundwood pulp processes will be able to utilize a large part of the logging waste, from the foregoing it will be seen that, in general, the sulphate process should be able to take care of it most readily, that is to say, it allows more latitude in the way of wood quality and species. But, in general, the sulphate process cannot be considered a scavenger for, as stated before, a good product is not produced from poor raw material. No doubt recourse to board manufacture or other uses will be required to make the most of logging waste. What it will be worth in relation to normal pulp logs is something that has yet to be determined.

Eventually, all logging operations and the utilization processes must become more closely integrated industries.

Some Observations on the Pulpwood Salvaging Experiment at Ladysmith

By ANGUS P. MacBEAN*

Assistant Forester, British Columbia Forest Service.

Wood Measurement

● At the outset of the Ladysmith, British Columbia, experiment in salvaging small logs off logged-off lands for a new pulpwood supply for Powell River Company, it was realized that scaling by a board-foot log rule would fail to give an adequate measure of the salvaged wood. This is due to the disparity which exists between the feet board measure contents of small logs and their actual solid wood volume. There is little doubt that this tendency is fairly generally recognized, although the magnitude of the difference is not always realized.

When logs are sawn into inch boards, the slab and edging proportion of the total wood volume increases as log size decreases. At a diameter of six inches lumber production is very small although for pulping there is a very fair yield since nearly all of the solid wood volume can be utilized.

A system of cubic measure has been adopted on the salvage operation. At the year end, 273,000 cubic feet of wood had been yarded into roadside piles. If this wood had been measured by the B. C. Log Scale (or by the Scribner or Spaulding Rules), it would have contained about 843,500 feet board measure. For pulp or paper production, it would yield a tonnage of pulp equivalent to that from 1,533,500 f.b.m. of normal pulp logs. In other words, its value is nearly double (1.8) that indicated by its board feet scale.

The scaling procedure which we are following involves measurement of the diameter at both ends of the log as well as total length.

In order to fix a value on a 100 cubic feet, it was necessary to obtain a cubic foot-board foot conversion factor from normal pulpwood logs on which there is a market price. Six hundred and fifty hemlock and balsam logs in 12 different booms, which originated over quite a wide territory, were measured for cubic as well as board foot content. This provided a factor of 178 c.f. per 1,000 f.b.m. With the market price of hemlock pulp logs at \$17.00 per M., the price per 100 c.f. is \$9.54. (The prices in the United States are slightly higher, \$19.00 on Puget Sound, but costs are correspondingly higher, too.)

*Paper delivered by Mr. MacBean at the Pacific Logging Congress, Seattle, January 20, 1944.

Recovery

A large proportion of the salvage wood comes from small understory hemlock, too small for sawtimber. Some of these trees are still standing, while others have been windthrown or pulled down in the first logging. Scattered islands of small scrubby timber are being utilized. Other material consists of long tops and broken chunks. Occasional logs left behind are also recovered. The material is cut in long lengths, ranging from 10 to 80 feet, and averaging 34 feet. Average small and end diameter is 6 inches. Seventy-eight per cent of the salvage is hemlock, 16 per cent Douglas fir and the remainder white pine (some cedar also). As fir is not a good pulping species for newsprint manufacture, only the fir on the ground is being recovered. The standing fir and cedar will serve as a seed supply for natural reproduction.

Recovery per acre varies from about 500 to 4380 c.f. The average recovery from the present yarded area of 164 acres is 1665 c.f. This is very good when one considers that the salvage area lies on a poor forest site, and utilization in the first logging was close, down to a 9 or 10-inch diameter. The original logging produced 30,500 f.b.m. If this is converted to cubic measure, and if it is added to the waste recovery, the salvage is found to be about 21 per cent of the total utilized stand.

Costs

(Some interesting detailed cost figures compiled by Mr. MacBean were published in the January issue of PACIFIC PULP & PAPER INDUSTRY. Following is an up-to-date summary.)

● To date two phases of the operation have been carried far enough to make fairly reliable cost estimates. One faller can prepare about 2,030 c.f. a day. Cost per 100 c.f. works out at 67c, to which must be added 13c for scaling, making a total cutting charge of 80c a 100 c.f. Two methods of yarding have been tried. A-frame yarding to a radius of about 300 feet costs \$3.10 a 100 c.f. Of this sum, nearly \$2.60 is an operation charge, the balance covers machine depreciation, wire rope, other equipment and insurance. Complete utilization by the A-frame method would involve additional branch road construction, which might run the cost up another 30c. Yarding with a tree to a radius of 500 or 600 feet costs \$3.60 per c.f. of which \$3.10 is for operation. Man-day production with the A-frame is 275 c.f. and 370 c.f. with the tree. Even by

the most expensive method, cutting and yarding costs total only \$4.40, leaving more than half of the \$9.50 price per 100 c.f. available to cover loading, hauling, booming and towing.

Costs per 100 c.f. converted to per 1000 f.b.m. of equivalent normal pulp logs:

Cutting:	0.793 x 178 = \$1.42 per M.	
Yarding:	100	
A-frame—	3.094 x 178	Tree—
100		3.588 x 178
= \$5.51 per M.		100
Total:	\$6.93 per M.	= \$6.39 per M.
		\$7.81 per M.

Reproduction of the New Forest

● The establishment of a new forest, without resorting to planting, is closely linked with the slash burning problem, which

PACIFIC PULP & PAPER INDUSTRY

is to be discussed by another speaker. There are now no heavy accumulations of slash, and as the second yarding has exposed more mineral soil, the seed bed has been much improved by salvaging, possibly not quite as much as it would be if the area was slash burned. However, if burning were carried out, the seedlings already established, and there are quite a few, would be destroyed. Probably many of the small seed trees would also succumb. These are not good seed trees as their crowns are small, but they are undoubtedly going to supply the area with some seed.

ENGINEER WANTED

Old established machinery manufacturer in Central part of U. S. A. has opening for engineer who has had successful experience in designing machinery and equipment to meet requirements of the modern pulp and paper mill industry. Write complete details in first letter to Box No. 2, Pacific Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

More Phases of Newsprint Problem Discussed by Powell River President

● Problems of the Canadian pulp and paper industry in maintaining a wartime supply of newsprint to the United States were outlined by Harold S. Foley, president of Powell River Company, this month in speeches delivered before meetings of prominent newspaper publishers in Dallas, Texas, and Los Angeles, Calif.

Mr. Foley told how British Columbia newsprint had come to the aid of California publishers since the war shut out imports from Scandinavia.

"My own organization, the Powell River Company, last year shipped 54,764 tons of newsprint to the California market," said Mr. Foley. "That compares with only 17,145 tons in 1939 when Canada entered the war. There is a significant reason for that specific situation. Before the war, a large proportion of the newsprint consumed in California was imported from the Baltic countries. After a few months of war that source was cut off, and I think there is cause for gratification on the part of California publishers that in the emergency they were able to look to their friendly neighbors in the north for co-operation—and get it."

Mr. Foley told of the proposal for 30 pound newsprint instead of the 32 pound standard. "The Canadian newsprint industry," he said, "is perfectly willing to go ahead and produce 30 pound paper if there is a universal demand for it; if all the publishers will accept it, and if we can receive an equitable price for it."

"But we cannot reasonably overlook the fact that it costs considerably more to produce 30 pound newsprint than the standard type. It means using a greater percentage of sulphite, so increasing the use of wood per ton of paper, and a reduction in the speed of the newsprint manufacturing machines—lost yardage and lost man-hours, and the industry quite naturally feels that it should be compensated for such loss."

"The Canadian newsprint industry has, however, voluntarily proceeded with the development of processes designed to conserve wood pulp without reducing the weight of the product or impairing its quality. By more liberal and scientific use of mineral fibers and other methods we have been able to produce roughly 4 per cent more paper out of the same volume of pulpwood. Because of this development the Canadian newsprint industry has suggested that publishers buying

from them should be entitled to 4 per cent more newsprint than they are awarded on a mathematical basis by the established quotas. Canadian customers are already sharing in this advantage, and it has resulted in the Canadian allotment being held at 15,400 tons a month under the new allocation, compared with 15,000 tons, which it would otherwise have been, instead of the 16,000 tons made available last year.

Savings Boost Supply

● "It was because of this economy in raw material utilization that the Canadian newsprint industry was able to offer the United States market 200,000 tons of newsprint monthly, compared with 182,000 tons permitted by WPB. Instead of allotting the greater amount—200,000 tons—to American publishers, WPB decided to place whatever surplus there might be in a stockpile. That may or may not be sound policy, but it's WPB's decision; it isn't ours."

"While we are on the subject of economizing in newsprint I would like to offer a suggestion. I am a newsprint manufacturer and do not profess to be familiar with all the problems of newspaper publishing, but I believe that the present situation offers a real opportunity for realistic co-operation between the newsprint manufacturer and the publisher."

"Due to the use of dry mats, newspaper publishers are responsible for the gradual shrinkage of the width of the roll on paper-making machines. This means a substantial loss in newsprint production. Practically the whole newsprint capacity of the world has been installed and equipped to produce a roll of minimum width of 70 inches or divisors thereof, which means that reducing this average width automatically reduces the newsprint producing capacity in similar degree. In the case of a 3-roll machine the loss in trim per reel is 13½ inches or something over 6 per cent, and inversely this means an increase in labor, power and drying costs accordingly."

"Naturally, newsprint manufacturers are seeking a practical method of correcting that situation and I may say that many of us have watched with very great interest the action of the Miami News in adopting a 9 column size. The use of nine columns on the newspaper page automatically goes a long way towards

utilizing the maximum capacity of the newsprint machine roll and in that way obviously makes it possible for the same machines to produce more paper in a given time.

"The newsprint manufacturers quite naturally have no desire to tell you how to run your own business, for you know your technical problems far better than we do. Nevertheless, the nine-column paper seems to us such an obvious means of correcting a serious production situation of direct concern to publishers as well as newsprint manufacturers that we have not hesitated to tell you how we stand in the matter. We have been advised by competent authorities that in most newspaper organizations the difficulties involved in changing from the eight column to nine column dress are not insurmountable and that the over-all saving in paper would be ample compensation. Those of you who regard the 9 column paper as a revolutionary and unthinkable departure should recall that less than 20 years ago many newspapers in this country were on a seven column basis."

Congress Group Asks For Pulp From Russia

● President Roosevelt has been urged by the Boren committee to make a deal with Russia through which returning ships may be utilized to bring tons of woodpulp and newsprint to the U. S.

Rep. Lyle Boren of Oklahoma, chairman of the committee which is investigating the newsprint situation disclosed this fact at a hearing in Washington after E. W. Tinker, secretary of American Paper and Pulp Association, revealed that the trade understands 16,000 cords of pulpwood or its equivalent in pulp already has arrived here from Russia.

Today's meeting was told by Mr. Tinker that employment of 1,800 more men in the woods of this country and 1,200 in Canada would solve the pulp situation.

Treanor Heads WPB Group

Arthur R. Treanor, vice president and editorial counsel of the Booth Newspapers of Michigan, has become director of the Printing and Publishing Division of the Forest Products Bureau of the War Production Board. He had been serving as deputy director to Harry M. Bitner, who resigned as of January 1.

Paper-Base and Wood Plastics

By ALFRED J. STAMM*

Principal Chemist, Forest Products Laboratory,** Madison, Wis.

ALFRED J. STAMM, author of the accompanying paper on plastics, was born in Los Angeles, in 1897. His degrees: B. C. California Institute of Technology, 1921; M. S., University of Wisconsin, 1923; Ph. D., University of Wisconsin, 1925. He was chemist, General Petroleum Corporation, Los Angeles, 1921 to 1922, and associate chemist to principal chemist, U. S. Forest Products Laboratory, Madison, Wis., 1922, to present time.



THE Forest Products Laboratory has been actively engaged during the last five years in the development of plastics from wood. Hitherto wood has been almost exclusively in the forms of wood flour and wood pulp fillers for molding compounds and pulp preforms and in the form of paper for paper-base non-structural laminates.

Wood is now finding use as the continuous phase in resin-treated, uncompressed wood (impreg) and resin-treated, compressed wood (compreg).

The plastic properties of the lignin constituent of wood are beginning to be utilized. Wood is being partially hydrolized to free the lignin and remove undesirable hemicelluloses in the making of molding powders which require smaller quantities of critical phenolic resin than do older commercial phenolic molding powders, its resin economy being due to the fact that the lignin serves as a plastic constituent (hydroxylin).

Improved resin-impregnated paper-base laminates are being made that have practically twice the strength of earlier commercial paper-base laminates (papreg).

All these newly developed materials have strength properties comparable to or well above those of former plastics, and some of them are sufficiently strong for various military and peacetime structural uses.

Papreg

● Paper laminates treated with phenolic resins have been made for years. They have been used chiefly for electrical insulating panels and for other non-structural uses which do not require exceptional mechanical properties. The manufacturers, in developing these materials, have approached the problem primarily from the resin standpoint. It was hence felt at the Forest Products Laboratory that further development of paper-base laminates, from the standpoint of finding the most suitable paper for the purpose, was a promising

PAPREG, an improved resin-impregnated paper-base plastic, made at the Forest Products Laboratory, is said to have practically twice the strength of earlier commercial paper-base laminates.

field of research. This proved to be the case. Within six months after the research was started, a paper-base laminate was developed that possessed several properties double those of the former laminates.

The following table gives the readily obtainable properties of parallel-laminated papreg (machine direction of sheets all in same direction). Cross-banded papreg will have properties about two-thirds to three-fourths those of the table:

Approximate Properties of Parallel-Laminated Papreg

Property	Value
Specific gravity	1.38
Tension:	Lb. per sq. in.
Maximum strength	36,000
Modulus of elasticity	3,000,000
Flexure:	
Modulus of rupture	30,000
Modulus of elasticity	3,000,000
Compression:	
Parallel to grain	17,000
Flatwise perpendicular to grain	40,000
Edgewise perpendicular to grain	15,000
Johnson double shear, parallel to grain, perpendicular to laminations	13,000
Izod impact:	Ft.-lb. per in.
Face-notched	5.0
Edge-notched	0.8
Hardness (Rockwell)	M 100
Water absorption (24 hours)	6 per cent

Adequate for Structures

● Papreg has strength properties adequate for a large number of semistructural uses and some structural uses. As a structural material, its brittleness seems to be its most serious handicap. Compared to ordinary plastics, it has quite good Izod values, but it is definitely inferior in this respect to fabric and glass fabric laminates. It is, however, superior to fabric laminates in practically all other strength properties.

Because of its low elongation, papreg is not as easily molded to double curvatures as are fabric laminates. It has been successfully used, however, in molding of quite intricate objects with but a limited amount of goring and tailoring.

Work is now underway on incorporating other resins, both natural and synthetic, in paper-base plastics primarily from the standpoint of cheapening the product and also with the objective of building up the toughness without too great a sacrifice in water resistance and other mechanical properties. Details on this phase of the work cannot be given at present.

Hydroxylin

● Lignin is Nature's plastic which cements the cellu-

*From a paper delivered before the Society of the Plastics Industry, New York City, Nov. 9, 1943. Some parts are summarized.

**Maintained by the Forest Service, U. S. Dept. of Agriculture, in cooperation with the University of Wisconsin.

lose fibers of wood together. A mild hydrolysis treatment breaks the cellulose-lignin bond of wood, freeing the lignin so that it can be used to rebond the cellulose fibers together.

Wood waste, preferably hardwood sawdust or mill waste, can be hydrolyzed by several different methods. The procedure which has received the greatest attention at the Forest Products Laboratory is a hydrolysis with dilute sulfuric acid in a rotary digester at a steam pressure of 135 to 200 pounds per square inch for 10 to 30 minutes. Besides breaking the cellulose-lignin bond, this hydrolysis treatment converts the hemicelluloses to sugars. These sugars, together with the acid, are washed out of the hydrolyzed wood and may be fermented to grain alcohol, thus giving a valuable byproduct. The residue constitutes 50 to 60 per cent of the weight of the original wood. As a result of the removal of part of the cellulose, the lignin content is increased to 35 to 40 per cent.

After drying, the hydrolyzed wood is quite brash and can be readily ground to a powder, preferably of 40 to 100 mesh. Although the lignin in hydrolyzed wood can be made to flow sufficiently for the molding of some simple objects by merely adding small amounts of water and pressing at 375° F., the flow is not adequate to give a product that is sufficiently coherent to stand long water immersion. Very similar results were obtained when nonresinous plasticizers for lignin were used in place of water, even though they did reduce the molding temperature. It was hence found necessary to use auxiliary plastics or plastic-forming constituents, together with a plasticizer for lignin, when the added plastic material did not also serve as such. The most suitable material found in the earlier work that served both functions is a mixture of 8 per cent aniline and 8 per cent furfural, together with 84 per cent of hydrolyzed wood and a small amount of mold lubricant such as zinc stearate. Molded products with good mold definition, water resistance, acid resistance, and electrical and mechanical properties can be obtained by pressing at 300° F. for 3 minutes (in the case of small objects) at 3,000 to 4,000 pounds per square inch. Because the product is semi-thermoplastic, it must be cooled somewhat in the mold.

The flow of this molding powder is not so great as that of the general purpose commercial molding powders. This, together with the fact that the product cannot be drawn hot from the press, led to further research on the plasticizing of hydrolyzed wood. The best flow properties so far obtained have been with a molding powder containing 25 per cent of phenolic resin and 75 per cent of hydrolyzed wood. With this combination, the flow properties and the properties of the product are comparable with those of general-purpose molding compounds containing 50 per cent of phenolic resin and 50 per cent of wood flour. The fact that only half as much phenolic resin is required with the hydrolyzed wood as with the wood flour indicates that the lignin of the hydrolyzed wood imparts plastic properties to the product.

The hydrolyzed wood-phenolic resin molding powders give molded products with flexural strengths ranging from 8,000 to 13,000 pounds per square inch, water absorptions of only 0.2 to 0.3 per cent after 48 hours' immersion in water, and extremely high acid resistance. It appears to be possible to mold this material into thicker flawless sections than can be made of general-purpose commercial molding powders. Because of these attributes, the material is now being tested in the molding of sizeable objects of industrial importance.

If chips rather than sawdust are used as the raw

PACIFIC PULP & PAPER INDUSTRY

material and the hydrolyzed product is abraded to a fiber rather than ground to a powder, it can be formed into a sheet on the paper machine. These sheets, with only a small amount of phenolic resin, can be compressed together into thick panels. The panels have considerably higher flexural strengths than panels made from the molding powder because of the reinforcing action of the much longer cellulose fiber.

Impreg

● A number of desirable properties can be imparted to wood by the forming of synthetic resins throughout the structure from resin-forming constituents of low molecular weight that have an affinity for wood. Although the hardness and compressive strength properties of wood can be improved by mechanically depositing any solid material within the structure, permanent dimensional stability and related properties have been successfully imparted to the wood only with a few specific resinoids under specific treating conditions. This is due to the fact that materials such as fats, waxes, natural resins and appreciably preformed synthetic resins, because of their large molecular size and their lack of polarity, under normal treating conditions show no tendency to penetrate the cell-wall structure of wood and no tendency to bond to the wood. Tests have shown that any water resistance these materials give to wood is entirely mechanical in nature. They cut down the rate at which water can traverse the structure, but they do not change the equilibrium swelling. Thus it becomes apparent that a treating material with an affinity for the wood greater than that of wood for water should be used. Unfortunately, all such materials in themselves have a high affinity for water. This difficulty has been solved with treating agents that are selectively absorbed within the intimate cell-wall structure of wood and subsequently can be converted to water-insoluble resins within the wood structure while remaining permanently bonded to the structure.

The most effective treating agent thus far found is phenol-formaldehyde, water-soluble resinoid that is not advanced beyond the phenol-alcohol stage. Resorcinol can be substituted for the phenol or furfural for the formaldehyde without loss of effectiveness. All urea-formaldehyde resinoids tried have proved to be too highly prepolymerized to penetrate the structure adequately, with the exception of dimethylol urea. Even this material when polymerized within the structure reduced the swelling and shrinking on an equilibrium basis to only 60 per cent of normal in contrast to reductions to 30 per cent of normal effected by phenol-formaldehyde resin. None of the thermoplastic resins or thermoplastic resin-forming systems thus far tried have effectively reduced the swelling and shrinking.

Impreg has several advantages over normal wood. Resin treatment, which reduces swelling and shrinking to about 30 per cent, reduces stresses to such an extent that checking is practically eliminated.

Treatment with stabilizing resins also imparts appreciable decay and termite resistance and increases electrical resistance as a result of the reduced hygroscopicity. Resin treatment increases the acid resistance but does not improve alkali resistance. Treatment with 20 per cent of its weight of resin may increase compressive strength and hardness by as much as 50 per cent.

Compreg

● Compreg is resin-treated wood that is compressed while the resin is formed within its structure. Although a number of different resins have been tried in making this material, none has proved as successful as phenol-formaldehyde. There are 2 types of compreg: 1) the older form, developed in Europe, which is treated with a spirit-soluble phenolic resin prepolymerized to the stage that it does not tend to penetrate the cell-wall structure and bond to the polar groups of the wood and, as a result, does not stabilize wood appreciably; 2) the form developed by the Forest Products Laboratory which is treated with a water-soluble, phenol-formaldehyde resinoid, as in the case of impreg, so as to form the resin throughout the cell-wall structure of the wood and bond it to the active polar groups of the wood. The latter form of compreg is much more stable than the former but tends to be more brittle.

The second type of compreg can be compressed to virtually the ultimate compression (specific gravity of 1.3 to 1.4) under a pressure of 1000 p.s.i., using practically any species of wood. The unstable form of compreg, on the other hand, requires pressures of 2500 to 3000 p.s.i. to compress the wood to the same degree. There is still greater difference in the pressures required to compress the wood of the stable and unstable forms to intermediate degrees of compression.

A high degree of polish can be imparted to any cut surface

of the Forest Products Laboratory form of compreg by merely sanding and buffing the surface. This easy way of restoring the finish would be an advantageous property of compreg or compreg-faced furniture. The natural finish is highly resistant to such organic finishes as alcohol and acetone which destroy most applied finishes. The water absorption of this type of compreg is both small and slow.

Conclusions

● It is obvious that wood is making an important place for itself in the plastics field. Although wood and its constituents serve mostly as the structural or filler

part of these plastics, wood and wood products show promise of invading the resin field.

Lignin and Vinsoi (a rosin-purification residue) show promise as resin diluents. It is also of interest that phenols, furfural and other resin forming constituents are obtainable from wood by destructive distillation and hydrogenation processes. It does not require great imagination to visualize a self-contained wood industry that uses wood almost exclusively in the manufacture of wood plastics.

Coast Industry's Newest Lab Is Hub of Extensive Research

POWELL RIVER COMPANY is undertaking an extensive research and development program and the principal base for these operations is a white-painted, attractive and well-equipped laboratory. It is the newest laboratory in the Pacific Coast pulp and paper industry and one of the newest in the field on the entire continent.

Completed during Canada's first year of participation in the present war, the laboratory has been the active hub of the new Powell River program for about two years.

This program, it may be explained, is intended to make further progress in changing Powell River, B. C., from a "one industry town" (newsprint) to the home of additional pulp and paper products. Diversification of production which already has taken place is illustrated in a photograph accompanying this article.

Possible uses of lignin as well as the cellulose in wood are being studied, according to Harry Andrews, control superintendent. An important objective, going hand in hand with opening new markets, is finding ways to eliminate waste and make closer utilization of the forest resources.

A representative of PACIFIC PULP & PAPER INDUSTRY recently toured the laboratory, which stands alongside the administration building on the brow of the hill at Powell River, with various units of the mill on the hillside and waterfront below it.

Completed in 1940 at a cost of \$45,000, the laboratory was designed by McCarter & Nairne, Vancouver architects. It is of frame construction on concrete foundations with an exterior finish of cedar sidings, a two-story structure with offices and laboratories on both floors.

R. C. Bledsoe, chief chemist, has his office in the lab building (Mr. Andrews' office is in the administra-



DIVERSIFICATION OF PRODUCTS is the present day trend at the Powell River Company of Powell River, B. C., which a short time ago was distinguished only as the manufacturer of newsprint.

The above photograph shows products of the company, recently exhibited under auspices of the Vancouver, B. C., Board of Trade. Left to right are: A bale of sulphite pulp, a roll of newsprint, a bale of flat newsprint sheets, pieces of aircraft spruce, bufftone plaster board, "Llama" brand building paper, and a table display of valves and ship's parts produced in the machine shop war work program.

tion building).

The roofing is of the tar-gravel type and steam heating is provided by an extension of the company system. All the most up-to-date laboratory arrangements and equipment are to be found. Chemical fumes, etc., are carried out of the laboratory rooms through specially designed flues.

There is no claim made, of course, that the laboratory has any monopoly on modern design or equipment and many of the ideas put into effect in the Powell River lab are duplicated in many other similar institutions. But to anyone who may be interested in laboratory improvements, a discussion of some of these features may be of interest. These are some of the things that were done at Powell River:

Description of Equipment

● An open "fire shower" was built in the main laboratory room, the shower plug in the wall with a concrete, rimmed floor. Any chemist who might accidentally catch his clothes on fire could be quickly doused under it. It also serves as a

floor sink, where large or heavy crocks may be filled with water or be emptied without requiring any strenuous lifting. Faucets for this purpose are directly under the shower nozzle.

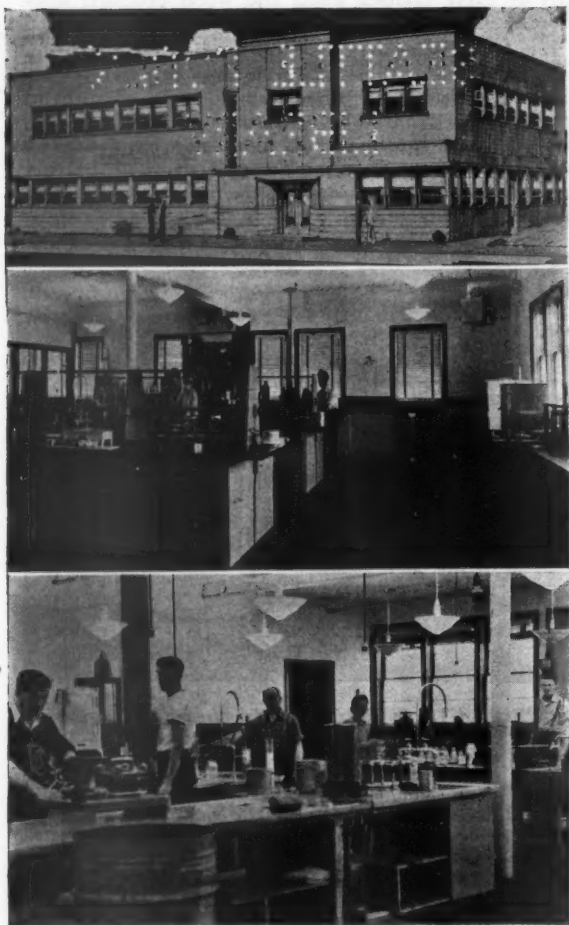
At the table sinks, goose-necks were added to the water taps to accommodate tall containers. The Powell River chemists say this cuts down on breakage sometimes caused in trying to get long glass vials or tubes under the taps.

In stock rooms, the shelves were all divided in half. Half of the shelves are on the walls, the other half on the doors that close in the shelves. Thus the technicians do not have to search behind a lineup of bottles on a shelf to find the ones they are looking for.

Masonite was used exclusively on all tables. It was decided that kind of table top is easiest on the glassware. There is less breakage and at the same time it is durable.

There are tile floors throughout the laboratory.

Corrosion-resistant material has been used extensively throughout



VIEWS OF THE LABORATORY AT POWELL RIVER COMPANY, Powell River, B. C. This is one of the most recent laboratories completed in the pulp and paper industry.

Upper left—A sketch of the two-story laboratory, measuring 50 by 85 feet.

Center—The main chemistry laboratory. Notice the wall shower and taps at the end of the wide aisle on the right. Heavy crocks can be filled with water, without strenuous or high lifting. At the same place, the shower serves as a precaution against fire. Any employees whose clothes accidentally caught fire could quickly douse the flame under the shower.

Lower left—The pulp testing laboratory. Note the goose-neck taps which make it easier to fill tall containers.

TOP RIGHT—MINIATURE PULP GRINDER IN POWELL RIVER LABORATORY. The grinder was built after a model of one used in Canadian Forest Products Laboratory. The stone is three feet in circumference and two inches wide, mounted on a two inch shaft, driven by 10 h.p. motor. Takes wood $1\frac{3}{8} \times 1\frac{3}{8} \times 8$ in.

BELOW—MINIATURE BEATER, also used in Powell River research.

the building and much of the metal work is stainless steel.

Of the equipment in the laboratory, one of the most interesting of all is a miniature pilot grinder, shown in a photograph accompanying this article. The grinder was

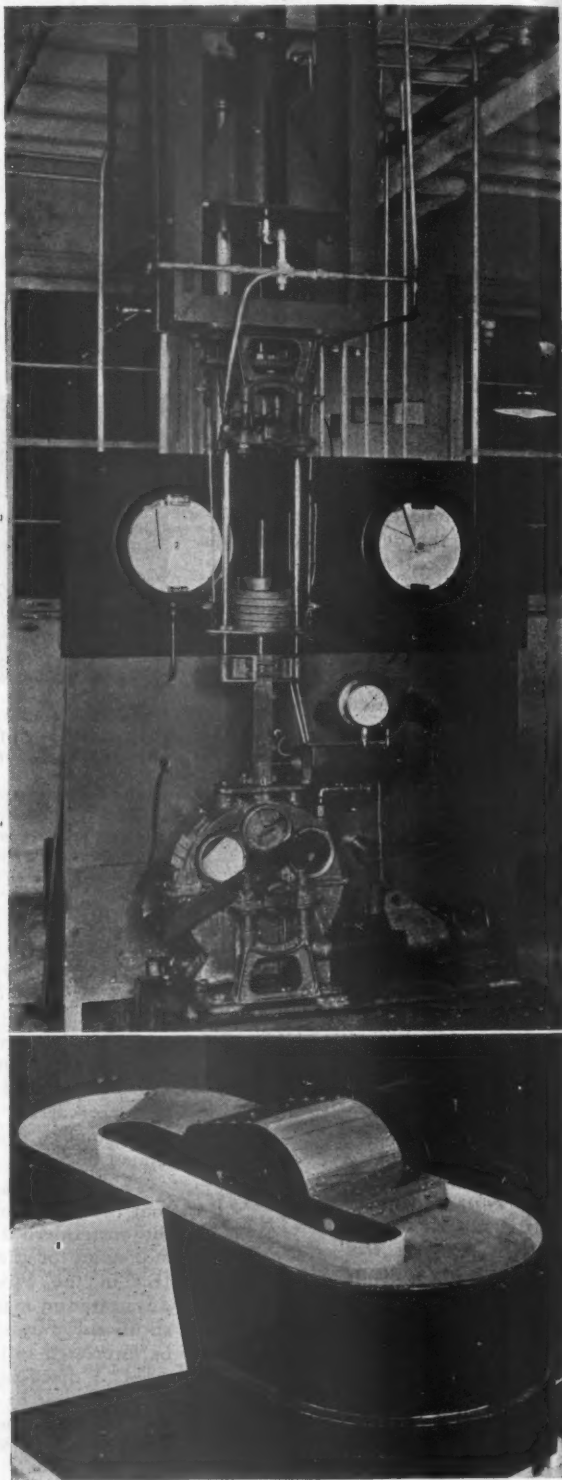
built after a model of one used in the Canadian Forest Products Laboratory in Montreal.

This midget grinder is indicative of the extent to which the Powell River Company is carrying on its research. Wood grinders have long

been familiar equipment in the industry, but, despite their familiarity, there has been really no important technical control developed in their use.

Grinding Studied

● As the Powell River chemists ex-



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pressed it, the use of grinders in the industry has been pretty much "a rule of thumb" procedure compared to the strict technical control practiced in other departments of the mill.

Before the war there had been a limited amount of research done in Germany and Russia regarding operation of stone grinders. It is believed the pilot grinders at Powell River and Montreal are the only ones in Canada and the only ones of this size on the continent.

The Powell River miniature grinder stone is 12" in diameter and two inches wide. It is mounted on a two inch shaft driven by a ten horsepower electric motor. The speed regulation is by a Reeves drive and the variable pocket pressure by deadweight load. The pocket is two inches square, taking wood $1\frac{1}{2}$ by $1\frac{1}{2}$ inches and up to eight inches long.

The discharge of pulp is from ports in front of the pocket.

On the ground floor of the building is a completely equipped pulp testing laboratory, all equipment, including disintegrating beaters, sheet making machines, presses and sheet drying apparatus, conforms to the specifications of TAPPI. A room maintained at constant temperature and humidity is kept for experimental and testing purposes.

Under general supervision of Mr. Andrews and the direct supervision of Mr. Bledsoe, both well known in

TAPPI circles as chemists and chemical engineers, are these seven chemical engineers:

Syd Collicutt, B. A. Sc.; Frank Dickson, B. A. Sc.; Walter Greene, B. A. Sc.; Alec Van Allen, B. A. Sc.; John Keays, M. A. Sc.; and David LePage, M. A. Sc.

In the broad research program undertaken by Powell River Company, probably the best known activity is the experiment in the recovery of small logs for pulpwood from logged over lands of the Comox Logging & Railway Company at Ladysmith, B. C. (Described in PACIFIC PULP & PAPER INDUSTRY, July, 1943, Pages 6-12, and in subsequent issues). Tests and analysis of pulpwood must be made in determining economic value of the experiment.

The entry of the Powell River Company into the sulphite pulp field also has widened the activities of Mr. Andrews, Mr. Bledsoe and their laboratory staff. The new sulphite mill (described in an article by Mr. Andrews in PACIFIC PULP & PAPER INDUSTRY, June, 1943, Pages 9-11) was built to house a multi-stage bleaching operation, but equipment for this section will not be installed until after the war. Bleaching of pulp will also serve to widen horizons for the research staff.

Plans for entering lignin utilization fields are becoming increasingly important.

"We are feeling our way, investigating the plastic properties of the lignin portion of waste sulphite liquor," explains Mr. Andrews. The experiment is being directed to the future production of what is termed "hard plastic products" for industrial and commercial use. The research program, however, is going beyond the potential manufacture of plastic materials.

"Basically," says Mr. Andrews, "our research on the one hand is aimed at exploration into new ways and means of using raw materials. On the other hand, our program is directed at diversification of our operations so that new products may be made locally."

The program is not confined to local chemical fact-finding. It embraces a wide sphere of research into conservation of raw materials, continuity of supply for the years to come, markets, and other factors.

Most of these developments now being explored will probably not blossom into commercial production until after the war, but President Harold Foley and other executives of Powell River Co. are anxious to make Powell River more than a "one-industry town."

The company is preparing for the day when it will be able to proceed with many important new installations designed to expedite and improve production methods. One of the first will be a hydraulic barker similar to the one in operation at the Weyerhaeuser Timber Company's pulp mill at Everett which was described in detail in the annual review number of PACIFIC PULP & PAPER INDUSTRY of May, 1943.

McPhee In Service

● Donald McPhee, secretary to Russell J. LeRoux, manager, Pulp Division, Weyerhaeuser Timber Company, Everett, Wash., has been called up for military service and has left his position at the mill. Mr. McPhee has been employed at the Everett mill since 1935.

Developments in Hoquiam Labor Dispute; CIO Threatened to Shut Down 18 Plants

● As this issue went to press, negotiations were under way in Portland, Ore., which it was hoped might break the CIO strike at the Grays Harbor Division of Rayonier Incorporated, which had hampered vital production of pulp for smokeless powder, rayon pulp and paper for several months.

While American boys were dying on Pacific islands and in Europe and U. S. Army ordnance officers were pleading for increased production at the Hoquiam, Wash., mill, a jurisdictional fight between CIO and AFL unions turned into an inter-CIO fight threatening to shut down 17 lumber, shingle and plywood mills on Grays Harbor. CIO officials connected with the boatmen's union aroused the ire of their fellow CIO members of the International Woodworkers of America by criticizing them for breaking their wartime pledge not to strike. The IWA group started picketing log booms and tying up log deliveries by the boatmen's union to all types of wood mills and had forced some to shut down.

At this point—with the strike threatening to spread havoc among various plants in war production, the Portland negotiations began.

One of many crises in the CIO strike at the Grays Harbor Division of Rayonier Incorporated came to a head on February 2 when the 12th Regional War Labor Board asked the U. S. Army to take charge of the pulp and paper mill.

In defiance of a War Labor Board decision ruling that the American Federation of Labor unions should continue as bargaining agents for the entire Pacific Coast Industry, as the AFL unions have done through ten years of harmonious labor relations with the manufacturers, the CIO threw a picket line around the mill December 5.

CIO STRIKERS VOTED FEBRUARY 8 TO RETURN TO WORK.

The Board turned down a CIO petition to become the bargaining representative of the Grays Harbor mill on October 9. On November 6 and December 13 the Board twice turned down CIO appeals from that decision.

● Its appeal for U. S. Army intervention was the second made to the military command since the strike broke out.

THE WAR LABOR BOARD—A BODY ON WHICH LABOR, MANAGEMENT AND GOVERNMENT ARE REPRESENTED—IN AGAIN ASKING FOR ARMY INTERVENTION, CONDEMNED THE CIO-IWA LEADERSHIP IN PLAIN TERMS AS:

"UNPATRIOTIC AND IRRESPONSIBLE."

The strike threw 600 employes out of work, but a number of them began going through the picket lines in mid-January and in early February the mill was operating on a partial basis with 100 to 125 employes back at work.

The War Labor Board had issued a back to work order and the U. S. Army had appealed to the patriotism of the employes, declaring the shutdown had seriously impaired production of nitrating pulp needed for smokeless powder.

AND COLONEL WALTER J. DeLONG, STATE DIRECTOR OF SELECTIVE SERVICE, ANNOUNCED THE RECLASSIFICATION OF ABOUT 150 STRIKERS FOR MILITARY SERVICE BY THEIR LOCAL DRAFT BOARDS.

"Obviously no man is entitled to deferment for military service if he is no longer working at the job for which the deferment was issued."

Trade Talk



of Those Who Sell Paper in the Western States

Paul Paganini In Army

J. Paul Paganini, former president of the Seaboard Paper Company, San Francisco, is now in the Army, studying communications at a camp in Georgia. His father, C. M. Paganini is carrying on in his absence.

Another son of C. M. Paganini, Charles E., who was formerly a partner with his father in the California Envelope Company, San Francisco, is now a Lt. (jg) in the naval reserve and is executive officer on a sub-chaser, somewhere in the Southwest Pacific. The California Envelope Company was purchased some time ago by the Envelope Corporation.

Coast Visitor

Ray X. Pfiffner, sales manager, Whiting-Plover Paper Company, Stevens Point, Wis., was a recent visitor to the Coast paper trade.

J. F. Wuenschel, Pacific Coast sales manager of the Hammermill Paper Company, and Grays Harbor Pulp & Paper Company, Hoquiam, Wash., paid a business visit to San Francisco and Los Angeles last month.



E. M. HUGHES, who has been appointed Sales Manager of the Printing Paper Department of Blake, Moffitt & Towne, Los Angeles. Mr. Hughes, native of Massachusetts and graduate of Ohio Wesleyan, has had much experience in the paper business and is well known throughout the country, having been the past 14 years Field Representative of the Strathmore Paper Company. Much of his work has been with printers on the West Coast whom he has regularly contacted for the past several years.



BOND BOOTH AND WAR BOND O-METER at Zellerbach Paper Company headquarters, 543-534 Battery St., San Francisco. A regular employee is detailed to this work. As shown in the photo, sales had reached \$11,000 on January 26, early in the campaign.

DuBois Goes to Neenah

George DuBois, who has been West Coast representative of the Kimberly Clark Corporation, with headquarters in Los Angeles, has been transferred to the mill offices at Neenah, Wis., for the duration. The Los Angeles office of the company will be maintained with Miss D. Farrell in charge.

Herbert H. Hart Dies

Herbert H. Hart, 60, for the past 40 years a Zellerbach Paper Company salesman in Washington state, died last month in a Seattle hospital.

Born and educated in Seattle, Mr. Hart was known as a sportsman and fishing enthusiast. For several years he had made his home in Yakima, returning later to Seattle, and more recently to Edmonds.

Bonestell Goes East

H. S. Bonestell, Jr., president of Bonestell & Co., San Francisco, is representing his firm at the National Paper Trades Association convention in New York.

Colton Back In Harness

L. A. Colton, vice-president of the Zellerbach Paper Company, San Francisco, is back at his desk after a bout with phlebitis which kept him home for more than three weeks.

Because of the manpower shortage the Zellerbach Paper Company has discontinued its Kansas City Division as of January 15.

Merchandise inventories of the Kansas City Division of the Zellerbach company have been purchased by the Carpenter Paper Company, with headquarters in Omaha, Neb.

Bruce Garrison, formerly manager of the Zellerbach Paper Company, Kansas City Division, will become affiliated with the San Francisco Division.

Crown Zellerbach Club Remembers Service Men

● The Crown Zellerbach Club, employees organization of the Crown Zellerbach Corporation San Francisco headquarters, sees to it all members get a real send-off when they go into the service, and what's more, the club remembers them when they're gone.

Every member entering the armed forces gets a leather utility bag as a going-away present and they also get a wool sweater. The wool for these sweaters is donated by Mrs. I. Zellerbach, who also knits some of the sweaters herself, others being knitted by the feminine members of the club.

At Christmas all former members of the Crown Zellerbach Club received a Christmas package. During the year boxes of stationery imprinted with the recipients name, and cartons of cigarettes are sent.

Birthdays are remembered too. Each person in the armed forces gets a gift and a letter on his birthday.

To keep club members informed of what goes on at 343 Sansome, scene of their former business activities, the club sends copies of the bulletin "Activities," which publishes letters from those in the service.

The corporation also contributes to morale by paying war insurance premiums on its former employees now in the armed forces, on policies up to \$5,000, and pays for a subscription to the home town paper, should the former employee want it.

McMillin In Hospital

D. C. McMillin, headquarters stationery department, Zellerbach Paper Company, San Francisco, suffered a heart attack last month on the golf course and is still hospitalized.



California or Florida?

REGARDLESS of the claims of these rival states . . . the fruit's the thing.

Similarly, in the Paper industry, H&M's Acid Orange Y is the thing. It's the industry standard.

On mill records . . . the brilliancy and money value of H&M Acid Orange Y are approximated by no other type of orange. It possesses excellent solubility and is widely used both as a beater color and calender stain.

It's the universal color for everything from boxboards to tissues. H&M Technical Service will show where its features fit into your line.

*And you should
also know—*

Acid Orange RR
For Redder Shades

Acid Orange NF
Non-Foaming

Acid Orange AD
Specialty for Staining

Crystal Orange 2G
Yellow Shade—Very Light Fast

HELLER & MERZ DEPARTMENT

CALCO CHEMICAL DIVISION : AMERICAN CYANAMID COMPANY



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PROVIDENCE • CHARLOTTE

SALES AGENT
PACIFIC COAST SUPPLY COMPANY, PORTLAND, OREGON

Oregon Electric Steel Mills--Made Possible By Pulp Mills--Is Bought by Ken Hall and Art Mears

● Kenneth B. Hall and Arthur M. Mears, president and secretary-treasurer, respectively, of Hesse-Ersted Iron Works, Inc., recently purchased the new and large plant of the Oregon Electric Steel Rolling Mills, Inc., at 5250 Northwest Front Street, Portland, Ore.

It is interesting that this plant, made possible only by assistance given by pulp and paper mills, in furnishing machinery parts, is now acquired by two men who, in turn, have often been of important assistance to the pulp and paper industry of the West Coast.

The big plant was purchased from

Morris and Sam Schnitzer and Harry J. Wolf. Mr. Hall and Mr. Mears, in turn, have leased it to Hesse-Ersted, which will be the operating company.

Mr. Mears will be operating manager of the new Hesse-Ersted Steel Rolling Division, and Mr. Hall will remain in charge at the Hesse-Ersted plant at 816 Southeast Taylor St., Portland.

Pulp and paper mills in the Portland vicinity were of great assistance in the construction of the Oregon Electric Steel Rolling Mills about a year ago, supplying it with rolls and vital materials from the

machinery part stocks of the pulp and paper mills.

William R. Smyth of the rolling mills, in a letter to PACIFIC PULP & PAPER INDUSTRY, said "without the wholehearted support and cooperation" of the pulp and paper mills "we would still have been delayed in production of this which is vital to the country at this time."

The rolling mills were built to produce steel for the Navy and Maritime Commission.

Mears said workmen for the last few days have been putting the plant in "apple pie" order. He said the plant already has orders and expects to employ more than 10 persons when the mill gets rolling. It is capable of turning out 100 tons in one shift, Mears said.

The mill, opened last June, was closed more than a month ago when the previous owners announced they were seeking more finances. At the time they said they needed between \$250,000 and \$300,000. The Reconstruction Finance Corporation holds a \$600,000 secured loan on the mill.

W. D. Welsh Gets Plaque For War Fund Work

● W. D. "Bill" Welsh, executive assistant, Crown Zellerbach Corporation, is back at his desk at 343 Sansome St., San Francisco, with a very handsome plaque, presented to him by the Mayor of Port Angeles, Wash., and the Clallam County chairman of the National War Fund.

This was a reward for the publicity job Mr. Welsh did for their National War Fund drive. Mr. Welsh was loaned by the Crown Zellerbach Corporation for two weeks to go to Port Angeles and handle the publicity for the drive, as was reported in the December issue of Pacific Pulp & Paper Industry. For two weeks he wrote a column that appeared daily in the local newspaper.

Reports Sweden Has Much Pulp for U. S.

Greater stocks of wood pulp and paper products in Sweden are ready for shipment to the U. S., as soon as wartime shipping restrictions are removed, according to Goesta Hall, member of a group of Swedish industrialists visiting in this country. (See page 19.)

Mr. Hall, who is engaged in the wood industry in Sweden, estimated future imports of pulp and paper from Sweden to the U. S. at \$50,000,000 a year, approximately the total before the war. The Swedish demand for American-produced goods in return will be high, he said.

Powell River Reunion In London Draws 100

● One hundred men and women of the Powell River Company, now engaged in various branches of the Canadian armed services overseas, held a reunion at the Beaver Club in London on January 23, according to a cable received from W. A. McAdam, British Columbia agent-general. This was the second function of its kind held in London, the other taking place shortly after Christmas, 1942. Sound pictures were taken at the gathering and these will eventually be shown at a Powell River auditorium.

How to Write LONG LIFE into Conveyor Belt Specifications



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Killam Makes Report To Canadian Association

● Lawrence Killam, president of B. C. Pulp & Paper Co., and chairman of the executive committee, western branch of the Canadian Pulp and Paper Association; Harold Foley, president of the Powell River Company, and Herbert J. McKenzie, secretary of the western branch of the association, were among the British Columbians who attended the annual meeting of the Canadian Pulp & Paper Association in Montreal this month.

"The year just closed produced many vexatious problems for the industry as a whole," Mr. Killam reported to the association. "Benefits from the formation a year ago of the western branch of the association were amply demonstrated both as a medium of conveying the collective views of the British Columbia manufacturers to the central industry bodies, and also as a focal point for discussion and the adoption of proper measures in connection with the local aspects of many of these problems."

E. Howard Smith, president of the association, said that pulp and paper manufacturing could contribute more than any other industry to post-war employment in Canada, provided that the peace treaties did not interfere too much with the country's regular markets.

Victory Center Dedicated At Camas

● The Camas, Wash., division of Crown Zellerbach Corporation officially dedicated a Victory Center for the city of Camas and in honor of the mill's 642 former employees who now serve with the armed forces of the United States. The ceremonies took place January 19, and were so timed to open officially the fourth war loan drive upon that date.

The new center, situated at the mill entrance at the foot of Fourth Avenue, Camas, follows a design similar to the Portland center.

C. W. Morden, inventor of the new V-wall panel material which is used in the structure, permitted use of his patented board without cost. Mr. Morden was formerly assistant manager at the Camas mill when Albert Bankus was resident manager there. The Morden V-wall material will be available for postwar houses.

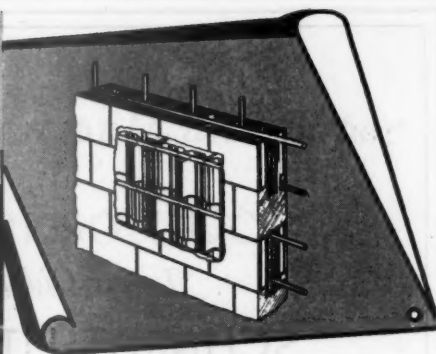
Approximately \$1500 was expended for the Victory Center by the Crown Zellerbach Corporation. The victory center will be utilized for war bond drives, and for other community and mill activities.

Vic Gault, personnel supervisor, acted as master of ceremonies at the dedication. Mayor H. J. Woodworth spoke on behalf of the city. In his brief dedicatory address, J. E. Hanny, resident manager, called upon everyone to support the fighting boys from Camas through purchase of bonds.

Joseph Sykes' Daughter And Son In Services

● The daughter and son of Joseph Sykes, master electrician at the Inland Empire Paper Company, Spokane, Wash., are in the armed services. His son, Captain Malcom Sykes, a former Spokane radio announcer, is a flight instructor at Sacramento, Calif. His daughter, Miss Olive Sykes, is in the marines, stationed at Cherry Point, N. C.

Mrs. Loretta Sykes, wife of the master electrician, died last November 27.



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Stebbins tile tanks are erected from Semtile blocks, which are hollow salt glazed tile, cored in two directions so as to permit the use of both horizontal and vertical reinforcing. When laid in a wall and reinforced, the cores are solidly filled with concrete so that the resulting structure is in reality a rein-

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A. E. McMaster Takes New War Post

● A. E. McMaster, formerly vice president and general manager of the Powell River Company, and well known in pulp and paper circles on the Pacific Coast, has been appointed financial advisor to Canada's minister of munitions and supply, Clarence D. Howe, at Ottawa.

Mr. McMaster was recently in Vancouver renewing contacts in the west. During the past few months he was acting in a special capacity as advisor on fuel wood supply.



E. L. BERRY (left), Vice President and General Manager of Link-Belt Ordnance Company, has been elected Vice-President of Link-Belt Company, the parent organization. Mr. Berry began his Link-Belt career in 1914

RICHARD F. BERGMANN (right), company Chief Engineer, has been elected a Vice-President of Link-Belt Company. Both will be at the company's general office, Chicago.

It's Major Duignan Now

P. D. Duignan, formerly assistant to A. R. Heron in the industrial relations department, Crown Zellerbach Corporation, entered the army 18 months ago as first lieutenant. Now he's been promoted to major, and stationed in Philadelphia.

Hill Jones' Son Honored

Captain Harold H. Jones, Jr., son of Hill Jones of the lumber division of Crown Zellerbach Corporation, and previously awarded the Distinguished Flying Cross, was on October 18, 1943, awarded the bronze oak leaf cluster.

The citation, signed by General C. C. Marshall, Chief of Staff, praised him for skill and resourcefulness while piloting a special geodetic mission in Africa.

Cloynard Hansen Wins Air Medal As Flier

● Cloynard W. Hansen, age 26, on leave as sulphite tester in the Central Technical Department, Crown Zellerbach Corporation, Camas, Wash., has been awarded the Air Medal for completing seven separate missions over enemy territory, according to word from his wife, Mrs. Jane Hansen, 325 South 11th St., Baton Rouge, La.

Young Hansen was employed by Crown Zellerbach Corporation from August, 1938, until he joined the U. S. Army air forces February 18, 1942.



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New Machinery Needed WPB Is Told

● If pulp and paper mills of the country are to fulfill their responsibility in producing required quantities of specified paper and paper board, it is imperative that the industry be enabled to acquire new paper mill machinery, the WPB has been advised by members of its pulp and paper mill machinery industry advisory committee. Allen Hyer is WPB Government presiding officer of the committee.

Flintkote Man Drowned

● Sgt. Frank K. Lehning, Jr., on leave from his job in the finishing department of the paper mill of Pioneer Division, The Flintkote Company, Los Angeles, was accidentally drowned near Needles, Calif., while on a special mission guarding the Colorado River. The accident occurred over a year ago.

He was such a popular member of his unit that his parents were adopted as "parents" of his company. After the accident, his commanding officer said "Frank was one of the finest and truest soldiers ever born, loved by all in his unit."

Army Sergeants Now

● Two former machine tenders of the Puget Sound Pulp and Timber Company were back in Bellingham on furlough in early January.

Sergeant Al Barmore, landing craft helmsman, had many tales to tell of his wanderings. He is now stationed in Florida. Criss Gerry surprised his friends, arriving with technical sergeant's rating. Criss is stationed in California and is a half-track operator.

Niles Anderson Heads Chemical Pulp Group

● Niles Anderson, formerly a manager of West Coast mills and now vice president of Marathon Paper Mills of Canada, is the newly appointed chairman of the chemical pulp group committee of the American Pulp & Paper Mill Superintendents Association. John Noble, Improved Paper Machinery Corp., is vice chairman of the committee.

Other committees are headed by eastern superintendents. Vice chairmen include: C. Staky of D. J. Murray Mfg. Co., makers of the Defibrator or Chemipulper, of the woodroom and woods operation committee; George Spencer, Putney & Jones, of the kraft group committee. H. E. Overacker, Cameron Machine Co., of the finishing and shipping group committee, and W. W. Cronkhite, General Electric Co., and S. W. Fletcher, J. O. Ross Engineering Co., both vice chairmen of the power plant and engineering group committee.

Time Uses Coast Paper

● Time Magazine announces that it is now the first national magazine of general circulation to print in California for California readers. It is printing 130,000 copies each issue at the Adcraft Company, using paper manufactured on the Pacific Coast.

Paul Kellogg On Coast

● Paul Kellogg, acting president of the Newspaper Association of Canada, spent several days on the Pacific Coast early in February renewing acquaintances in the pulp and paper industry and getting posted on British Columbia's specific problems. During his visit he made a trip to the Powell River Co.'s mill.

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Mechanics Lead Longfibre Bowlers

● The Longfibre Bowling League, ending the first few weeks of competition on the second half of its schedule, as of January 21, showed the following results:

	Won	Lost	Pct.
Mechanics	10	2	.833
Finishing Room	8	4	.677
Bag Plant	7	5	.583
Pipe Fitters	7	5	.583
Supervisors	6	6	.500
Machine Room	5	7	.417
Box Plant	4	8	.333
Pulp Mill	1	11	.083

Best game and series marks and averages are carried over from the beginning of the season. They show:

High Team Game—Bag Plant, 1058
High Team Series—Machine Room, 3011
High Single Game—White of Pipe Fitters, 266
High Single Series—McDaniels of Mechanics, 721

Serena of Finishing Room has high average for the season with 191, followed by Retzlaff of Mechanics with 190. Eight others top 180.

Mills Asked to Assist In Drive Against Forgers

● Forgery of endorsements to stolen checks is becoming one of the commonest violations in crime.

Secret service agents this spring will approach pulp and paper manufacturing companies which issue substantial numbers of checks, asking them to help federal authorities reduce forgery of this kind, and at the same time save themselves time and money.

U. S. Secret Service believes theft of checks and subsequent forgeries can be controlled in substantial degree if issuers of numerous checks will over-print on their checks, just above the space for endorsement, a legend urging the person cashing the check to insist upon adequate identification.

Pulp and paper companies issue a great many, and for that reason they are being called upon by the Secret Service and urged to participate in this program designed to curtail forgery.

Herb Smith Leaves

● Herb Smith, for 25 years a sheet metal worker at the Crown Zellerbach Camas mill, has resigned his position because of long continuing ill health. He left Camas on January 31 for Los Angeles where he intends to reside with a sister, and to raise chickens and rabbits on a commercial scale.

Newsprint Production Down 8.7% In 1943

● The North American output of newsprint paper in 1943 was 4,023,857 tons, of which 2,982,797 tons was made in Canada, 804,853 tons in the United States, and 236,207 tons in Newfoundland, according to R. S. Kellogg of the News Print Service Bureau.

The Canadian output was 6.1 per cent less than in 1942, that in the United States 15.5 per cent less, with a loss of 14.9 per cent in Newfoundland, making a total decrease of 383,287 tons, or 8.7 per cent.

Stocks of news print paper at the end of December were 65,397 tons at Canadian mills and 76,389 tons compared with 70,662 tons on November 30, 1943, and 101,587 tons at the end of December, 1942.

Howard Smith, president of the Canadian pulp and paper manufacturers association and head of a company with three large mills, recently urged the Canadian industry to prepare now for the postwar era.

Also in this talk, Mr. Smith said the pulp and paper industry in Canada was the only big industry in the Dominion which would be able to export its products after the war to a market WHICH HAD THE NECESSARY ABILITY TO PAY FOR THE PRODUCTS — THE UNITED STATES. He warned that "only as a last resort should we ask United States consumers of newsprint—our best permanent customers—to reduce their requirements drastically."

Lighter Grade Newsprint Passes Test On Presses

● Scripps-Howard Newspapers, after experimenting since July with 30-pound newsprint in order to get more pages per ton of paper, now report that readers and advertisers cannot tell the difference between the lighter weight paper and the ordinary 32-pound newsprint, and results in production on high speed presses have been termed "excellent."

Later reports are that the Pittsburgh Press and Cincinnati Post are now using 30-pound paper exclusively. This is made

by the Great Northern Paper Company. The New York World-Telegram, Boston Herald and Detroit News are other papers which have begun experimenting with lighter newsprint.

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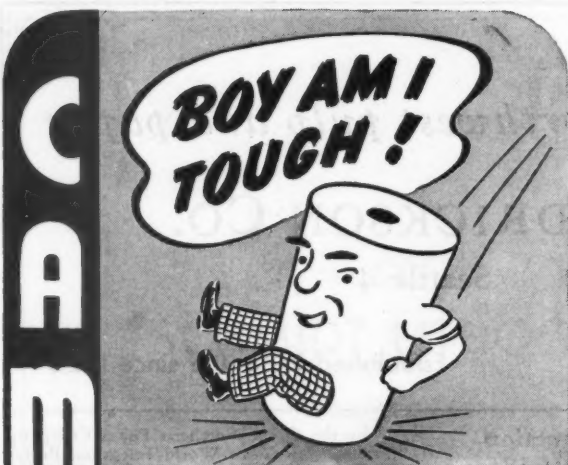
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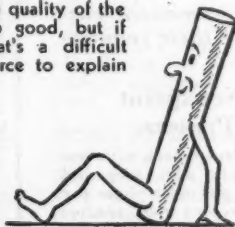
Boy, am I tough! If you don't believe it, ask any newspaper pressman how I stand up under the bumps and jolts of shipment.

From the day I started out in life as the first turn around the rewind shaft on a Cameron Winder, I admit I got a good start. In no time at all the winder built me up. It's a fact that the winder treated me gently, but even so I grew so quickly to my present size, that it would make your head swim to watch me. A Cameron Winder alone is responsible for my rugged character.

When I was finally ready to go out into the world to do the job for which I was made, the paper mill superintendent said, "Now there's a roll that can take it. Furthermore, it actually weighs more and contains more paper than a roll not wound on a Cameron Winder. That means greater weight per carload and less shipping expense, also less wrapper cost." Then I made my long trip to the big city by boat, rail, and finally by truck. You'd be surprised to find out what freight handlers can do to a roll that has not got what it takes.

The pressroom gang gave me a royal welcome and soon I was on the press and ready to go. Layer by layer the speeding presses unwound me and stripped me so close to the core that I felt naked. A fine way to treat a noble roll! Any other roll would have been babied along and left with a generous layer of core waste.

So here I am—just about used up but with my last gasp I want to say, "What's the use of making first-class paper and then putting it up in second-class rolls? For it's in the roll that the catch lies. The quality of the paper may be ever so good, but if the rolls are bad, that's a difficult matter for the sales force to explain away."



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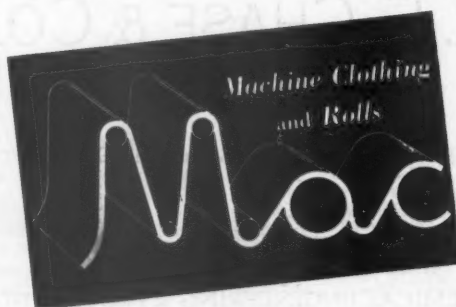
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